

Library NOV 12 1917

# MUNICIPAL JOURNAL



VOLUME XLIII  
No. 19

November 8, 1917

\$3.00 a year  
10 Cents a Copy

## EXTRA SERVICE at No Extra Cost

When you buy your new motor driven fire equipment probably the manufacturer will send it all to you mounted on Goodyear Tires.

But it is just as well to make sure of this point when you order.

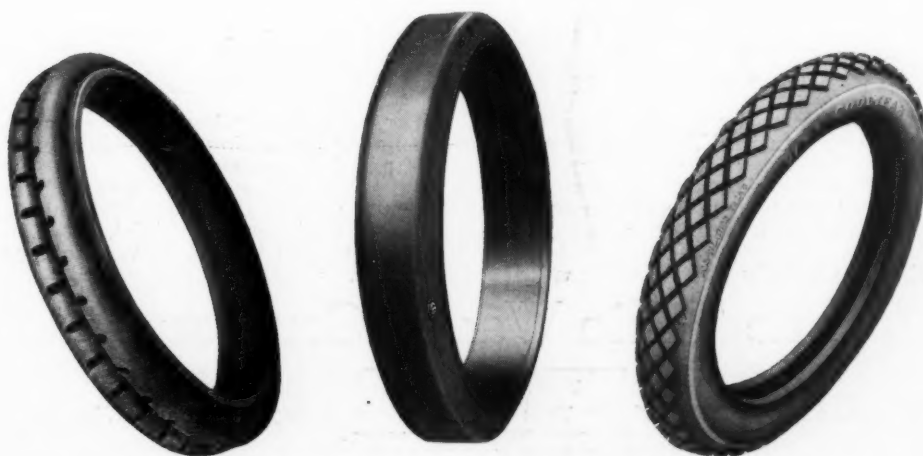
Just write Goodyear Tires into your specifications.

There will be no extra charge. But there will be extra service,

extra economy, extra safety and extra satisfaction.

For Goodyear Tires, of all three types needed on fire-fighting apparatus, have proved such invariable superiority that now two-thirds of all new motor equipment is delivered on these tires, and 982 cities now use Goodyears.

The Goodyear Tire & Rubber Co.  
Akron, Ohio

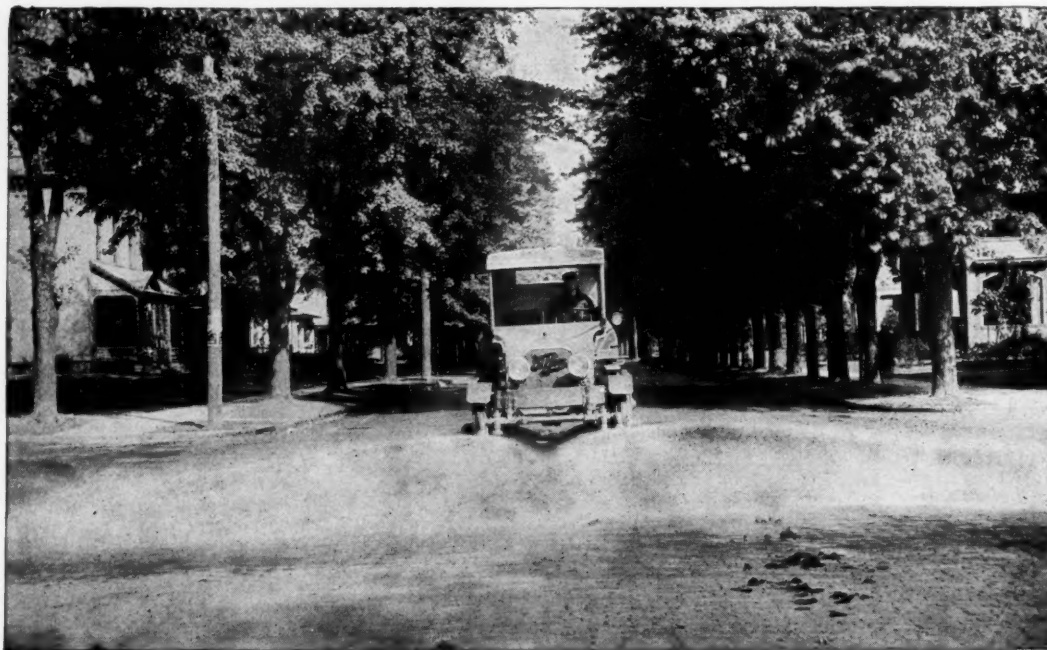


GOOD  YEAR  
AKRON

# TIFFIN

## 2-Motor System Street Flushers

(Designed by this Company and equipped with adjustable nozzles, which are licensed under Ottotofy Patent No. 795,059.)



TIFFIN 1,200-GALLON, TWO-MOTOR SYSTEM, COMBINATION FLUSHER AND SPRINKLER, SHOWING SPRINKLER NOZZLES IN OPERATION ON A 60-FOOT STREET.

## Present Flusher Prices

Not guaranteed after January 1st.

No advance in price has been asked on Tiffin Municipal Vehicles for over a year, in spite of the sharp advances asked by all motor truck makers.

We cannot guarantee present prices beyond January 1, 1918.

Cities who contract for a Tiffin Flusher before this date given a considerable advantage.

### Merit of the Tiffin Machine is established by its performance.

The Tiffin 2-Motor-System Street Flusher and Sprinkler has amply proven itself. Reports from every section of the country tell of greater service than any claims we ever made. The final indorsement must come from the user. It has been given the Tiffin in a manner that dispels all doubt. The Tiffin Flusher is perfectly controlled because

the pressure motor has no other work to do. The motor propelling the vehicle is entirely distinct and independent. One man controls all devices and drives the truck. We will submit definite street flushing data to any city engineer or official. No time should be lost in view of possible price advances.

## The Tiffin Wagon Company

### TIFFIN, OHIO

Makers, also, of Tiffin Motor Trucks, Sprinklers, Dump and Farm Wagons  
**REPRESENTATIVES:**

**NEW YORK**  
J. A. del Solar, Export  
J. A. Dewey, Domestic  
**PHILADELPHIA**  
Loder & Smith  
**PITTSBURGH**  
H. B. Naylor  
**JACKSON, MICH.**  
G. M. Whaley

**MINNEAPOLIS**  
J. N. Johnson Co.  
**PORTLAND, ORE.**  
A. G. Long  
**NASHVILLE**  
Dixie Road Mch. Co.  
**MONTREAL**  
F. H. Hopkins & Co.

**WAUSAU, WIS.**  
Radeliffe Mch. Co.  
**FARGO**  
Fargo Fire Engine Co.  
**OGDEN**  
Sidney Stevens Imp. Co.  
**DENVER**  
S. G. Elbe

**LOS ANGELES**  
F. F. Foster Co.  
**SAN FRANCISCO**  
N. K. Davis  
**MEMPHIS**  
J. G. Livar  
**NORFOLK, VA.**  
W. M. Hannan, Jr.  
**TORONTO, ONT.**  
F. H. Hopkins & Co.

# Municipal Journal

Volume XLIII.

NEW YORK, NOVEMBER 8, 1917

No. 19

## FIRE MARSHAL DEPARTMENT OF OHIO

**The Work, Duties and Powers of the Fire Marshal—The Law and Incendiarism—Startling Results Following Declaration of War—Keeping Records—The Marshal's Allies in the War Against Fire.**

By T. ALFRED FLEMING.\*

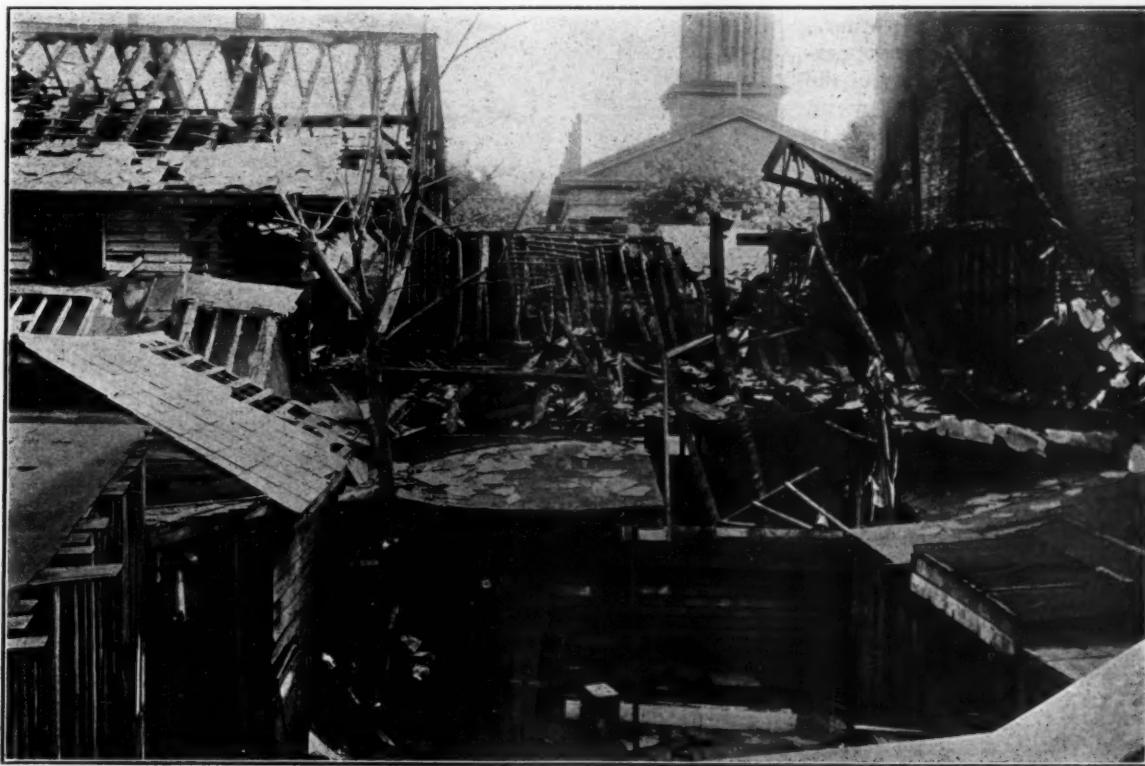
The public has some queer ideas about a fire marshal's office, the occupant thereof being mentally pictured as anything from a fireman in white rubber coat and helmet to a Sherlock Holmes slipping along on clues, disguised in a false beard and wearing rubber soled "sneakers."

In peace times the work of a fire marshal's office is heavy enough, but in war times it grows by leaps and bounds. His duties can be roughly divided into advisory, corrective and penal.

of the law as it stands upon the statute books of his state.

The penal end of the work, of course, is the working up of arson cases, the securing of evidence that will "hold," and the arrest and conviction of the guilty persons. It does not stop there but, especially in war times, the department keeps track of when the sentences of convicted persons expire and what such arsonists are doing while they are free.

Taking them as a class, those who set fire to property



**FIRE HAZARD REMOVED BY OHIO STATE FIRE MARSHAL.**

This fire wreck was removed only after considerable trouble with the owners.

Under the first head are treated all requests for information as to what to do regarding physical hazards to property, which range in scope from whether a lightning rod should be painted along with the house, to the proper manner of constructing a big building.

In his corrective capacity, the fire marshal must be a combination of diplomat, judge, jury and stern exponent

\*State Fire Marshal of Ohio.

are abnormally bright in covering up their tracks, especially those who burn property to get the insurance or for revenge. It is difficult to apprehend the pyromaniac also, but sooner or later he falls into the net for the simple reason that he or she chooses neither time nor place for his or her operations, but sets fire to anything that will bring the fire department rushing to the scene, be it a dog kennel or an apartment house. In Ohio, by far





A TYPICAL INSTANCE OF INVITING A FIRE.

the largest number of incendiary fires are caused either by pyromaniacs or by children too small to realize what heinous crimes they are committing.

#### THE LAW AND INCENDIARISM.

The value of the office of fire marshal depends entirely upon the strength of the law back of it. In my judgment, standard laws on the holding of suspects, the right of examination and search, the right of condemnation and removal of dangerous hazards, and a heavier penalty for the punishment of the crime of arson should be so broadened as to make easier the conviction of persons setting fire to property, either their own or that of others. Also, there should be closer cooperation between the legal machinery of the states and the fire marshal's department.

Incentive to arson seems to move in waves, the strength of which is determined by the state of the weather or exciting influences like pestilence or war. At all times there exist individuals whose minds are on the verge of breaking, and undue excitement from drink, personal habits, or excitement breaks down the partition between reason and insanity and a desire to do something abnormal follows. Often this takes the direction of homicide, but more often that of a desire to see something burn. This type of arsonist is difficult to guard against or to apply corrective measures to. After being placed in an asylum he may later appear to become mentally normal, but who can tell when the balance will again be disturbed? As an illustration, we now have under surveillance a young man who seems to be physically perfect, with regular features and good address. After setting fire to an apartment house he was sent to an institution, where he rapidly recovered. He was transferred to a state farm and in a short time caused a fire among the farm buildings that destroyed \$15,000 worth of property. What can be done in cases like his?

The practical difficulty in working up the evidence in cases of ordinary incendiarism is that the evidence is burned up with the building. Moreover, people are afraid to tell what they know for fear of being burned out themselves by the arsonists.

With our entering into the war, the plotter and alien enemy conspirator became important factors. These men are of the shrewdest mentality and add to this an absolute disregard for death. They aim at destroying foodstuffs, vessels, terminal points and munition factories. This class of criminal comes under the jurisdiction of the secret service, but every fire marshal in the land must co-

operate to the fullest in the fight against needless waste. This work is hazardous, at times extremely so.

#### INSPECTION WORK.

The fire marshal's office must at all times see that conditions are not allowed to exist that may breed fires. In this work, constant patrols must be maintained on inspection and reinspection work. Formerly in Ohio this branch of work engendered much ill feeling and led to recourse to court proceedings, property owners regarding the visit of the inspector as a personal affront and his recommendations as arbitrarily impertinent. Education is rapidly changing this, and the cases of trouble over corrective orders are now but one-eightieth as numerous as formerly. In part this condition is due to diplomacy on the part of inspectors and in part to the fact that the state fire marshal's orders are upheld by the courts. Intelligent persons have been made fire preventionists and strong allies of the fire marshal by having demonstrated to them that the changes ordered in their properties will



ATTIC ABOVE THEATRE THAT NEEDED CLEANING UP.

reduce their insurance rate and make safe the lives and properties around them.

Following the declaration of war, the insurance companies of the country enlisted their field forces to a man in the work of conservation inspection. In Ohio, 250 of the ablest, brightest and most diplomatic men in the fire insurance business at once became an invaluable cooperative force, acting in unison and harmony with our regular inspectors. Special attention was directed first to the safety and storage of foodstuffs, coal, munitions and the like, and was continued into the home, office, mill and mine. Conditions bordering on the incredible were found, among which might be enumerated: Alien watchmen on guard over vital necessities of the army, water supply clogged and useless for fire protection, antiquated and useless private fire equipment or no equipment at all, "plants" of infernal machines timed to blow up storehouses and wholesale plants at night, fire hydrants located with several railway trunk lines between them and the factories they were supposed to protect, great manufactories with no fire fighting force and no one responsible for the up-keep and instant use of the fire fighting equipment, and factories with no night watchmen. And as to physical conditions, the invitations to fire that were found were legion.

The result has been that Ohio, like other states where there has been co-operation with the insurance men, is safer today in war time than it was formerly in time of



peace. This is the result of intelligent cooperative conservation.

#### RECORDS.

Unless the fire marshal's office keeps up a thorough system of records, the work of the department goes for naught. There should be a clear and complete history of each inspection and order, so that the fire marshal can at any time know instantly the status of any particular case. Deputies should keep their records up-to-date and the fire marshal should know hour by hour just where his men are and what they are doing, for no one can tell at what moment the entire force may be needed at a given point or when one man may need the assistance of four or five others.

Records of every fire in his state should be available at the fire marshal's office, including the class of building, cause of fire, damage to building and to contents, time of discovery, and such additional data as the fire chiefs think necessary in individual cases.

A complete history of each arson case, the picture of the arsonist, his sentence and where he is *now*, should be an important feature of the records.

Every inquiry and letter, however trivial it may seem at first, should be answered immediately. This is official courtesy and is also diplomacy, and every friend a fire marshal's office makes is an addition to his force of operatives. The same rule should apply to personal telephone calls.

#### ALLIES IN THE WAR AGAINST FIRE.

Many allies can be enlisted in the war against fire. School teachers, if given short, snappy facts as a starter, can apply in their schools fire prevention lessons as they appear daily in the papers. Civic bodies, societies of credit men, superintendents of schools, chambers of commerce, boards of trade, boy and girl scouts, women's clubs, and a thousand other bodies can be enlisted in

the work. Insurance clubs, associations and societies are invaluable aids. Information received by the fire marshal from these or any other source must of course be regarded as strictly confidential. Boys and girls can often secure information that the best of trained detectives could not; and even more important, they exert an influence for good at home and also upon their companions.

The fire marshal should be upon the best of terms with the personnel of the fire department throughout the state and see to it that his deputies are likewise. Nothing makes more for rapid reduction of fire hazards than hearty cooperation. When fire officers and inspectors know that the power of the fire marshal, backed by all the judicial machinery of the state, is behind him, they can accomplish wonders.

The fire marshal can aid and advise the installation of cooperative fire fighting units in rural communities; and to the resident far from fire hydrants and water mains, he should furnish ideas with which to mobilize the power of his community for fire fighting.

Perhaps the greatest ally of all is the press. Through periodicals, newspapers and pamphlets the fire marshal can reach the public as in no other way. He should send out bulletins on timely topics and see that they reach the homes. Strong newspaper and magazine editorials are splendid ammunition. It is a good plan to have a story ready for the reporters every time they visit the office.

The officer, when he finds it necessary to order changes in a property, should use judgment in allowing the owner a reasonable time in which to comply, looking the ground over quietly before this time has expired to see if any attempt has been made toward remedying the defect. Material is high now and labor difficult to obtain, and under conditions like these the fire marshal must use tact and judgment. While the law may permit him to tear down or rebuild dangerous constructions, circumstances may not justify such action. Diplomacy exercised in such a case may win a strong ally to fire prevention. The mailed fist must be used at times, but diplomacy should be tried first.

#### THE OHIO OFFICE OF FIRE MARSHAL.

The office of Ohio State Fire Marshal was created by the Ohio Legislature in 1900, only one state, Massachusetts, having such office at that time. Prior to the passage of the law there had been only 41 convictions for arson in 10 years, and in 60 of the 88 counties of the state there had not been a single conviction. In many places public sentiment was opposed to the prosecution of incendiaries by the state.

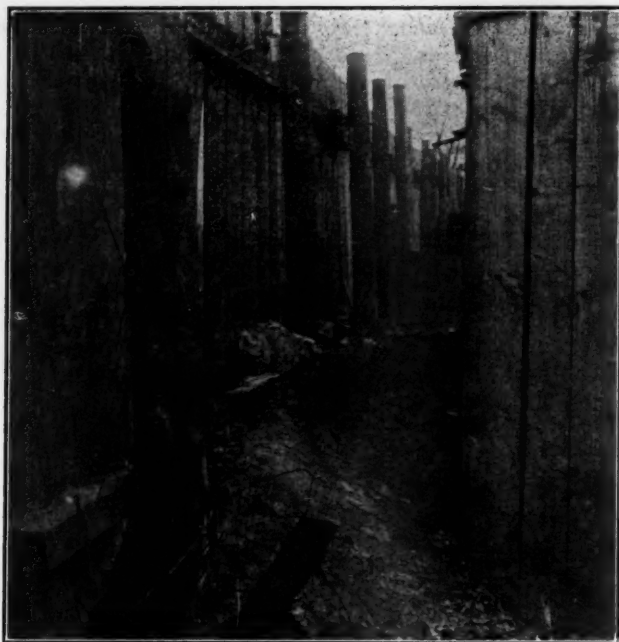
Each fire insurance company doing business in the state pays one-half of 1 per cent of the gross amount of



BUILDING IN LARGE OHIO CITY BEFORE AND AFTER BEING RAZED BY STATE WRECKERS.



INSPECTOR LOOKING AT A FIRE RISK IN AN ALLEY.



HOT ASHES DUMPED BETWEEN SHED AND FENCE.

premiums paid in the state, after deducting returned premiums and considerations received for reinsurance. This fund is used by the fire marshal, any portion remaining unexpended at the end of the year being turned in to the general revenue fund of the state.

The department consists of the marshal, who appoints a first deputy, second deputy, and chief assistant; also such clerks and assistants as are necessary. The state is divided into 20 districts, all reporting daily to the main office in Columbus, where either the marshal or his chief deputy is constantly on duty. The marshal has complete command of all the office and field forces and is executive head, the deputy and chief assistant acting in his absence. The field men are employed in inspection and investigation work, such as finding incendiary cases, etc. All work is laid daily before the fire marshal, so that he may be in touch with any situation at any time. During war times, of course, his duties are multiplied and include close attention to the requirements of the War Council. Among the assistants are men specially trained in electrical and other branches.

The marshal and his assistants and deputies have power to compel attendance of witnesses and require the production of any books or documents deemed pertinent, and to administer oaths. A fine of \$100 and a jail sentence is provided for refusal to testify or for disobeying lawful orders of the marshal or his deputies. The marshal may conduct his investigation in private and may separate the witnesses. He may at any time of day or night enter upon and examine any building or premises where a fire has occurred and other buildings and premises nearby. The force may also at all reasonable hours enter any buildings for making examination. The department can repair, tear down or demolish dilapidated hazards and correct defective chimneys, wire and gas connections, as well as hazards of explosive oils and other liquids. It enforces its orders by prosecution when necessary.

The department makes surveys of communities either upon request or when the need is evident. In making such surveys, particular attention is paid to the possible future needs as well as the protective needs of the present. Distances between fire hydrants, fire and domestic pressure, water supply, etc., are carefully studied and plans by experts are prepared. Fire protection is required

to keep pace with the growth of the community and in many instances a complete revisal of the system has lifted a town or city out of the dangerous hazard class. In one typical instance, a town of 12,000 population, the fire pressure was found to be but 37 lbs., and even this could not be maintained. There was a deadlock between council and mayor over \$1.00 per connection for putting the town in a safe class; improvements had stopped and the peril of a bad fire was constantly present. As the result of the department's activity, the municipality now has a new well and a reservoir, and a hydrant pressure of 85 lbs. can be maintained indefinitely.

The law requires the local marshal, chief of the fire department, or, where there is neither, the mayor or township clerk, to investigate the cause, origin and circumstances of each fire and endeavor to determine whether it was due to carelessness or design, such investigation beginning within two days and being conducted by the state marshal personally if he thinks it necessary. One of the results of the work of the department is the discouraging of incendiarism. For the first eight months of 1917 the department secured 60 convictions, as compared with 41 in the ten years prior to the passage of the law.

*For Standardization.*—The department heartily endorses the standardization of hydrant and hose connections, although the promotion thereof is mostly carried on by the Fire Protection and Water Supply Committee of the Ohio State Fire Prevention Association; and Ohio is believed to lead in this matter of standardization. Co-operative fire chiefs' associations have been organized, each covering a 50-mile radius from some large city as a center, and the couplings and outlets have either been standardized or such provision made that, by the use of adaptors, the aid of all fire-fighting apparatus within that radius can be massed at the scene of conflagration. The Ohio Inspection Bureau has obtained dies by the use of which couplings of certain diameters can be made to conform to the standards and these are loaned without cost to municipalities and the work of adaptation is done by the fire departments themselves, with very little cost.

## FIRE PREVENTION.

### Work Done by State and National Organizations— Underwriters' Laboratories' Labels—Inspection by Local Firemen—Aid by Federal Departments.

A large part of the credit for the fire prevention propaganda must be given to the fire insurance organizations; the fact that they are acting largely from selfish motives in no way diminishing the public value of their work. One of the most important results of their activity was the organization of state and national fire prevention associations, the membership of which consists largely of insurance men. The state associations hold regular meetings and have secured much legislation providing for better building codes and fire regulations and more effective fire departments. In cooperation with local and state authorities they have secured the inspection of towns with a view to discovering and having remedied the more serious fire hazards. The National Fire Protection Association, with headquarters in Boston, Mass., investigates and keeps records of all large conflagrations, issues valuable fire prevention bulletins and in general carries on an educational campaign.

Several magazines are published in the interest of fire prevention, including "Fire Protection," the official organ of the Fire Marshals' Association of North America; "Construction" and "Safety Engineering" of New York.



The Fire Marshals' Association of North America is an organization of the state fire marshals, of which there are 33 in the United States and Canada. Through this association the fire marshals cooperate with each other in every way possible and at the annual convention compare experiences and devices and are generally addressed by outside fire prevention experts.

The Underwriters' Laboratories is a corporation chartered in 1901, to maintain laboratory and inspection service on materials, devices and products and to enter into contracts with the owners and manufacturers of such materials, devices and products, respecting the recommendation thereof to insurance organizations. It has grown greatly in the extent of its work and renders an important and far-reaching service to the cause of fire prevention. Its work is carried on under the direction of the National Board of Fire Underwriters. It aims to secure and give out the best obtainable opinions regarding the merits of materials, appliances and systems in respect to fire and accident hazards. With it are connected about 150 engineers and assistants at the Chicago plant, together with others in the New York testing station, inspectors at factories, etc. When the product of a given manufacturer has been accepted as satisfactory, following suitable investigation, inspectors are stationed at the factory to follow the daily run of materials through the various processes, conducting such

tests as are specified, and should the goods be found to be suitable they attach the Underwriters Laboratories' labels. In addition, tests are made on labeled material purchased from dealers and on samples of labeled products taken out of service.

Insurance inspection bureaus not only inspect property for making an insurance rate to fit the hazard, but make recommendations for the lessening of the hazard to the mutual advantage of insurer and the insured.

Probably most valuable of all, where it is thoroughly and systematically carried out, is the inspection of buildings made by local fire departments in many and an increasing number of cities.

In addition, credit men's associations have taken up the subject and held special meetings where the fire problem was the topic of discussion. For ten or fifteen years past the Federal Government has been giving more or less attention to the fire problem and a number of bulletins have been published by the Geological Survey and the Bureau of Standards giving the results of thorough investigations in the various phases of the fire waste problem, its causes and remedies. The work of the states, chiefly effected through state fire marshals, is described in this issue.

For the above outline of fire prevention work we are indebted to a report of L. T. Hussey, state fire marshal of Kansas, from which it has been greatly condensed.

## THE NEW YORK BUREAU OF FIRE PREVENTION

**Organization and Jurisdiction—Work Performed by Each of the Several Divisions—Supervision of Structure of Buildings and Auxiliary Fire Appliances—Combustibles and Explosives—Electrical Inspection—Education and Propaganda.**

By ROBERT ADAMSON, Fire Commissioner, City of New York.

After the Triangle Shirtwaist Factory fire, in New York City, in which 146 persons lost their lives, an inquiry was conducted to determine what department or bureau of the city or state government was responsible for allowing the existence of the conditions that caused the tragedy, and it developed that no public official could be held responsible. The Hoey Bill was then introduced into the State Legislature to fix the responsibility for such conditions in the future by creating a bureau which should have jurisdiction over fire prevention matters in the city of New York. The bill became a law in October, 1911. The Bureau of Fire Prevention thus created worked with a temporary force until May, 1912, when a permanent force was established under civil service requirements.

There can be no doubt that fire prevention in New York City has paid. For the first five years of the Bureau's activity, from 1912 through 1916, the total fire loss was \$7,909,582 less than for the five years preceding. This represents an average reduction of \$1,581,916 a year. During the three years from 1914 through 1916 the record was even better, the reduction averaging over \$2,000,000 a year. Nor do these figures tell the whole story. In reading them it should be remembered that many factors have militated strongly against a reduced fire loss for this city since the beginning of the war. A suit of clothes destroyed by fire today represents a loss appreciably greater than would be represented by the same suit destroyed five years ago. Furthermore, owing to increased business activity, the average factory burned down today would have a far larger stock of goods to be destroyed than the average factory five years ago. Exports from the Port of New York have increased \$2,000,000,000 in the past two years, creating a new and complex waterfront hazard; hazardous trades such as chemical manu-

facturing have had a mushroom growth, spawned by the war; and in the intense pressure of new business and war-created activity, standards of individual carefulness have been lowered. It is not surprising, under these conditions, that New York's fire loss last year was greater than during any year since 1912. It is surprising, considering the adverse odds, that so substantial a reduction in the fire loss can be shown for the entire period during which scientific fire prevention work has been practiced here.

### JURISDICTION AND ORGANIZATION.

Under § 780 of the Charter, the Bureau of Fire Prevention has supervision in one way or another over approximately 394,518 buildings in Greater New York. Of these, 237,831 are one-family and two-family houses, while the remaining 156,687 buildings include hotels, theatres, factories, schools, warehouses, lofts and other structures.

The powers of the Bureau are defined in the City Charter, the Code of Ordinances, and the Lockwood-Ellenbogen Law of 1915, which transferred to the Fire Commissioner the enforcement of the fire prevention sections of the State Labor Law, previously within the jurisdiction of the State Labor Department.

The Bureau proper employed, in 1916, 246 persons, of whom 148 were classed as inspectors and assistant engineers, and the remainder as administrative and office force, examiners, process servers, etc. It contains the following divisions: Division of Violations and Auxiliary Fire Appliances; Division of Combustibles; Division of Places of Public Assembly; Electrical Division; Division of Examiners; Division of the Plan Room; Recording Division; Stenographic Division.

Not all of the work connected with fire prevention, however, is done by members of the Bureau. When the





prepared by the inspector as part of his report, which generally occupies several pages. These reports are turned over to the examiners for examination and the preparation of orders based on the violations noted.

After fifteen days a reinspection is made. If the order has not been complied with, a copy of it is left by the inspector. If it is again uncomplied with, it is referred to the enforcement squad for the preparation of a complaint and the issuance of a summons. Members of this squad must possess a knowledge of court procedure, since they become the department's representatives as complainants in court. Fire Department cases are handled by the corporation counsel, whether for criminal action or the collection of civil penalties.

As an example of the orders issued by this division, the following might be quoted:

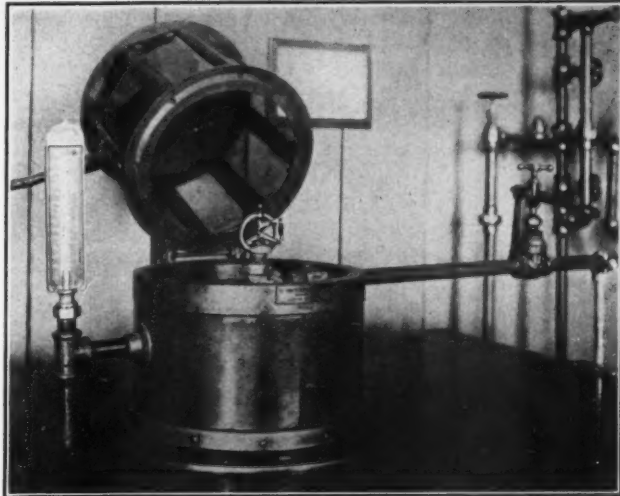
**YOU ARE HEREBY ORDERED AND REQUIRED, within .....days from the date of the service of this order, to install a WET EQUIPMENT FOR ENTIRE BUILDING.**

A separate and distinct system of **AUTOMATIC SPRINKLERS**, with heads approved by the Fire Department, supplied with water from tank or tanks located on roof, and not connected in any manner with standpipes or house service, shall be placed on the ceiling of every floor at such intervals as will protect every square foot of floor surface when said sprinklers are in operation.

**AUTOMATIC SPRINKLERS** shall also be placed wherever practicable in all offsets, rooms or other places where deemed necessary.

The entire system shall be connected to one or more approved 2-way 3-inch Siamese connections with proper signs, placed on outside of building above curb level, in a position accessible for use by the Fire Department.

Drawings showing location, sizes and connections, with



**AUTOMATIC TESTING DEVICE FOR SPRINKLER HEADS IN MECHANICAL LABORATORY OF BUREAU.**  
Sprinkler head in tester, before application of heat.

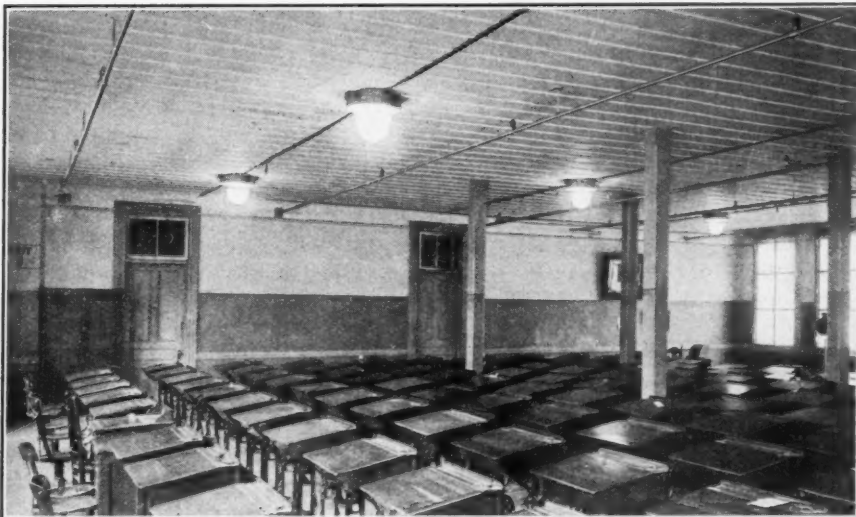
sioner in October, 1916. These cover exit, occupancy, and housekeeping conditions in factory buildings as defined by the Labor Law. It is estimated that there are approximately 12,000 factory buildings in the city. From the beginning of the year to September 18, the Fire Department made complete surveys of 3,900 of these buildings, and by the first half of the year 15,000 violations had been noted.

The great mass of work involved in the enforcement of the Labor Law has had to be done by the Fire Department, so far without an increase of force or additional funds. This has been accomplished by extending the policy of utilizing the uniformed force. Each company commander has been made responsible for the inspection of the factory buildings in his district. In districts where there were an unusually large number of factory buildings, the work was done by a Central Building Inspection Squad consisting of forty firemen selected for their knowledge of the law and of building construction. This squad made 510 complete surveys from July 20 to September 8. Each complete inspection involved the detailed measurement of stair width, risers, treads, stair halls, aisles, exits,

fire escapes, windows, etc., as well as noting the condition of standpipes, hose, water supply, check valves, pumps, outside siamese connections, sprinkler equipments, etc.

These surveys are now going forward at the rate of one hundred a week. Recommendations for the owners and for the tenants, based on the inspections, are recorded on separate sheets. The fireman also makes a diagram to scale. In the making of these diagrams some of the men have shown latent talent as draftsmen.

The work of the Division of Violations on the Labor Law begins where that of the uniformed fireman finishes. The division receives all building inspection reports, scans and checks them carefully, issues written orders where required under the mandatory provisions of the law, makes reinspections where necessary, and carries cases to the courts when compelled to take legal action. Under this plan, approximately 3,122 orders had been issued by the bureau up to October 1, and it had in addition disposed of approximately one-half of the 6,020 pending orders transferred to it by the State Labor De-



**SPRINKLER SYSTEM IN NEW YORK HIGH SCHOOL.**

Installed by order of Bureau of Fire Prevention, making safe a building that otherwise would have had to be abandoned.

duplicate affidavits, must be furnished to the Fire Department for all sprinkler work.

These drawings must be to scale, and shall consist of such floor plans and sections as may be necessary to show clearly all such work to be done, and must show all partitions, stairway enclosures, elevator shafts, and any other physical conditions affecting the sprinkler system.

Prints will be accepted.

The said sprinkler work shall not be commenced or proceeded with until drawings and specifications, in detail, shall have been filed and approved.

No modification of the approved drawings and specifications will be permitted unless amended drawings and duplicate descriptions covering the proposed changes are filed and approved.

Neglect or refusal to comply with the above order may render you liable to fine or imprisonment, or both.

Certain classes of orders are served by a process server. Others, for which no formal service is necessary for the prosecution of a civil suit, such as notices covering violations of the mandatory provisions of the Labor Law, are mailed.

One of the most important phases of the work handled by the Division of Violations and Auxiliary Fire Appliances is the enforcement of the fire prevention sections of the State Labor Law, transferred to the Fire Commis-

partment. The task could not have been adequately handled by the bureau with its present force without the cooperation of the Bureau of Fire Extinguishment.

In this connection, another aspect of the work of making factories safer has been handled by the uniformed force. This is the work of conducting fire drills. The Labor Law requires that the owner and not the tenant shall conduct fire drills in factories. Where there were many tenants, the owners found this impossible and the law remained a dead letter. The Fire Drill Squad of fifteen picked firemen was organized to provide a service the owners were unable to provide for themselves as well as to ensure the safety of the occupants. From October to April this squad conducted 2,774 drills, including drills in schools, involving several hundred thousand persons. The good effect of these drills has been shown in several fires where the occupants were able to leave the building in safety because of their previous training.

*Handling of Combustibles and Explosives.*—One of the most interesting and difficult aspects of the work of fire prevention in New York City is that handled by the Division of Combustibles. This division supervises the storage and use of dynamite, chemical plants, motion picture films, garages and dry-cleaning establishments, refrigerating plants, etc. There has been a considerable development in the work of the division owing to the world war.

Perhaps the most important work the division has accomplished under the present administration is the handling of the film situation. It was found that inflammable motion picture films were stored throughout the city without any special safeguard in all types of buildings, many non-fireproof and non-sprinklered, contrary to the provisions of the Code of Ordinances. Disastrous film fires outside the city impressed upon the department the necessity of having conditions remedied in New York City, with the result that all inflammable motion picture film is now stored in fireproof sprinklered buildings with proper ventilated vaults. The seriousness of the problem is indicated by the fact that there are, in addition to the smaller plants, a half dozen buildings in which are stored from twenty to fifty or more tons of film. A number of film fires have occurred, but in most cases these were extinguished before the arrival of the apparatus by the automatic sprinkler system. There have been two disastrous film fires in the last three years. In one case the occupants had been ordered to vacate and were negotiating for other quarters at the time the fire occurred. In the other, the fire was due to the occupants having misrepresented conditions and concealed films from the representatives of the Fire Department.

The regulations governing the storage and use of dynamite have been perforce made more stringent since the outbreak of the war. Dynamite can only be stored and used under authority of a permit from the Fire Department. These permits are issued to persons who have filed bonds with the city as indemnity in case of accident. The actual handling and safeguarding of dynamite is done by persons who have been licensed by the Fire Department after examination. Permits for storage and use are not issued until the magazine and the work has been passed upon by inspectors of blasting.

While dynamite is stored in a magazine it is inspected daily by a member of the uniformed force. The city is divided into seven districts, with an inspector of blasting responsible for each district. This work includes both day and night inspection. Since the outbreak of the war, the number of watchmen on magazines has been doubled under orders of the department; and where dynamite is used in large quantities and over an extensive territory,

particularly in subway construction, the Police Department has a special policeman watching the work.

The extent of the hazard involved in this part of our work is indicated by the fact that in ten consecutive days, selected at random, the two largest powder concerns handled 14,700 pounds of dynamite, or an average of nearly 1,500 pounds a day, in a city closely built up, and in most cases under streets containing heavy traffic and crowded office buildings.

A license from the Fire Department is required for the legal operation of any chemical or technical plant. Owing to the very extensive development of this kind of work since the supply of German chemicals was cut off, the department has not been able to keep in as close touch as it has desired with the industry, and in several cases has only learned of the introduction of a new plant after a more or less serious fire. For example, it was discovered by accident that large quantities of phosphorus were being brought into the city contrary to the provisions of the Code of Ordinances, owing to the dislocation of the ordinary routes of trade by the war. This phosphorus was being stored in all kinds of buildings at a considerable risk, owing to the fact that if the water used for packing the phosphorus leaks away the material spontaneously oxidizes in air. The situation was so complicated that the provisions of the law could not be enforced without entailing a considerable hardship on the industries involved. It was met by learning all the firms that were likely to handle phosphorus and impressing upon them that the only condition on which the handling of it would be tolerated was that the department be promptly advised of all arrivals and shipments of the chemical. This arrangement has been lived up to, entailing a great deal of work on the part of the Division of Combustibles in following up the various shipments and seeing that they were handled with the proper safeguards.

There was a new development in 1916 in the handling of refrigerating plants. Fatal explosions had occurred in such plants and great difficulty had been experienced in the extinguishment of fires because of liberation of suffocating gases. The problem of safeguarding the plants was little understood, even by refrigerating engineers and experienced operators of refrigerating plants. Refrigerating engineers and some of the best operating engineers in the city were consulted and eventually the assistance of the American Society of Refrigerating Engineers was obtained. Experiments were carried on at the plant of the National Ammonia Company in Philadelphia and these resulted in the adoption of specific regulations, including a design of a water and ammonia mixer. The regulations were approved by the fire commissioner April 28, 1916.

Ample time was allowed for compliance with these regulations, which were compiled in such a manner as to be easily executed. Compliance with the regulations has already averted accidents in a number of cases, as shown by the investigation of inspectors. In other cases, accidents have occurred that would have been avoided had the regulations been complied with. The city of Detroit has adopted the New York regulations practically word for word, including the drawing, and copies of the regulations have been furnished upon request to the governments of a number of states.

The refrigerating work in the Division of Combustibles is in the hands of men with engineering training. Chemical houses, manufactories and establishments are inspected by graduate chemists, one of whom holds a doctor's degree. The inspection of garages is handled in a routine manner by members of the uniformed force acting for the division. In fact, in order to bring the



work of the division up to date, the services of the uniformed force were utilized on the routine inspection of all types of hazardous occupancies excepting those requiring special training and experience, such as oil plants and refineries, wholesale drug houses, film storage houses, refrigerating plants and the like.

**Theatres and Places of Public Assembly.**—The Division of Places of Public Assembly has jurisdiction over the following approximate number of buildings in the city:

	Number	Seating Capacity
Theatres .....	239	327,808
Motion picture theatres...	766	359,175
Public dance halls.....	778	180,587
Athletic clubs .....	29	75,462
Baseball parks .....	3	71,300
Total .....	1,815	1,014,332

The division inspects theatres once a year for renewal of licenses, and periodically to see that equipment is in order, and polices theatres and places of public assembly during performances. The license renewal inspections and later inspections are concerned with those features of a theatre that have to do with public safety in case of fire or panic, the adequacy and availability of the exits, and the equipment provided for controlling and isolating the hazards involved in a theatrical production. These instruments may be listed as: Exits; fire curtains and automatic skylights; sprinkler systems and standpipes; fireproof walls; partitions and fire doors; portable appliances; fireproof scenery.

During the present administration, the policy has been followed of withholding theatre licenses until violations were corrected, and the pressure thus brought to bear has insured a high standard of compliance with the law. On a few occasions it has also been necessary to suspend licenses temporarily until bad conditions were remedied or the orders of the department complied with. During 1916 systematic tests of hose were made in all theatres and exhibition buildings under the jurisdiction of the division, and about one mile of defective hose lengths was found and replaced.

To every performance in every theatre where there is a stage and scenery is used, the department sends a uniformed fireman. He must reach the theatre one-half hour before the performance begins, and must make a complete inspection of the entire building. He must open and shut all exits, try all fire doors, examine the asbestos curtain with rope attachments, skylights, and extinguishers, and make a general survey of all the protective devices. He must make at least three tours of the building during the performance, and see to it that halls and exits are not blocked by standees.

In addition, inspections are made for boxing clubs, common-show moving picture theatres, moving picture exhibitions, and dance hall licenses. All large commercial exhibitions, bazaars, dances, etc., in the larger exhibition buildings like Madison Square Garden, the Grand Central Palace and some of the city armories, are also supervised and controlled by this division. Inspections are made at the request of the Department of Licenses, violations noted, orders forwarded, reinspections made, and approvals forwarded when conditions have been corrected. Moving picture theatres are inspected approximately twice each week.

The policing work and licensing inspections for dance halls and moving picture houses are done by uniformed firemen. The theatre inspectors are men graded as assistant engineers, with past experience which would make them especially competent to deal with fire protective devices.

(To be continued.)

## THE STATE FIRE MARSHALS.

### Description of the Work of Their Respective Departments Furnished by the Marshals of Nineteen States—Powers, Aims and Achievements.

The office of state fire marshal has been created in the states of Alabama, Arkansas, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Minnesota, Mississippi, Montana, Nebraska, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Texas, Virginia and West Virginia. Other states have officials who act to a certain extent in the capacity of fire marshals, among these being the deputy chief of the state police of Massachusetts and the fire prevention commissioner of Tennessee. The powers and purposes of the fire marshal in the several states, together with some of the details of the operation of the office, have been furnished by the marshals at our request and the information so furnished is presented in the following statements:

**Arkansas.** Bruce T. Bullion, Fire Marshal. The office was created by the legislature on March 7, 1917, under the title of insurance commissioner and state fire marshal. It is supported by appropriations out of the state's revenue fund. The commissioner has one deputy, one assistant and a clerk. The marshal is appointed by the governor, must be a citizen of the state and of well-known business ability, having had at least three years' experience in some branch of the insurance business. He holds office for 6 years and receives \$3,000 salary. The deputy marshal must be a lawyer of recognized ability and receives \$2,400 salary. The assistant commissioner receives \$2,000 and the clerk \$1,200.

The marshal is directed to enforce all state laws relative to prevention of fires, fire alarm systems and fire extinguishing equipment; the storage, sale and use of combustibles and explosives, fire escapes and provision for exit from factories, schools and all other places in which numbers of persons congregate from time to time; the suppression and investigation of the causes of fires, giving assistance in the prosecution of incendiaries. He has power to summon witnesses and administer oaths. He shall furnish information to any citizen concerning how to construct buildings so as to lessen fire hazards, and shall disseminate information concerning the best known methods of fire prevention. He shall require teachers of all educational institutions to have at least one fire drill every month.

All fire, tornado, marine, life, accident and health insurance companies not incorporated in Arkansas but doing business there must pay 2 per cent of the premiums received each year. This money is to be paid to the state treasurer, and while nothing in the act states the reason for requiring such payment or the use to which it is to be put, it presumably is to provide funds for the support of state fire marshal.

The marshal makes no special fire surveys. He does not receive reports of all fires, but only of those which are supposed to be of incendiary origin, and investigations of fires are made only on request of certain local officers. The office has been in operation for only 6 months, but already has investigated a number of such fires and has secured several indictments, none of which has yet been tried. A monthly bulletin is issued and sent to all the newspapers of the state.

**Illinois.** John G. Gamber, Fire Marshal. The office was created in 1909, a Division of Fire Prevention being created as part of the state Department of Trade and

Commerce. The division was organized on June 1, 1911, the two years delay being due to the failure of the legislature to make appropriation for the office. The office is maintained by a special levy of  $\frac{1}{4}$  of 1 per cent on all insurance premiums in the state. The division is subdivided into two special departments known as the Department of Investigation and the Department of Inspection, with a deputy at the head of and in full charge of each. The matter of publicity and education is carried on continually by the department as a whole. At present the staff consists of the fire marshal, an assistant fire marshal, a supervisor of inspections, a supervisor of investigations, a deputy in charge of the Chicago office and 20 field deputies. The main office is located at Springfield, the state capitol, and a branch office is maintained in Chicago.

The marshal has power to enforce the department's orders as to fire hazard conditions, and to subpoena witnesses and compel them to testify in matters pertaining to the investigation of fires.

Surveys of communities are made. In case of a large city, a corps of inspectors is assigned to the work by blocks and a report made to a deputy in charge. In the case of small cities, one or two men are assigned to the work and report direct to the Springfield office. In classifying these surveys, it is found that in a great majority of cases rubbish and defective electrical conditions are those demanding most attention. The marshal also advises communities to organize for fire prevention work and carries on a campaign of education among school children, and urges cities and villages to improve their fire fighting equipment and facilities.

The fire marshal receives reports of all fires, those occurring in Chicago being sent to the Chicago office and forwarded each month to the Springfield office; other fires being reported direct to the latter office. All fires are investigated by the local officials and those reported as suspicious are investigated by the marshal. As a result of the investigations made by him and followed up by indictments and convictions, incendiarism has been materially reduced and incendiary reports are very few as compared with previous years. Some progress has been made towards standardization of hydrant and hose connections and more attention will be given to this phase of the work in the future.

*Iowa.* Ole O. Roe, Fire Marshal. The office of State Fire Marshal was created in 1913. The marshal, appointed for four years, receives \$2,500 annually and his deputy \$1,800, with traveling expenses, the total expenditures of the office being limited to \$13,500. Chiefs of fire departments or officials acting in their stead receive 50 cents for each fire reported satisfactorily to the marshal and in addition 10 cents per mile to township clerks for traveling to the fires. The fire marshal is to investigate the cause of a fire whenever he thinks it necessary, the local fire chiefs or village clerks being required to investigate the causes of each fire in their respective territories, especially as to whether it was incendiary in origin, and report to the State Fire Marshal within one week of the occurrence of the fire. If the marshal believes that there is sufficient evidence to charge any person with the crime of arson or conspiracy to defraud, he is to arrest such person and furnish evidence to the prosecuting attorney, together with testimony and names of witnesses.

The marshal endeavors to reach, through the public schools, all children for the purpose of instructing them concerning the causes and dangers of fires. He also endeavors to educate municipal authorities with a view to secure better building ordinances, more efficient in-

specting of buildings and better enforcement of ordinances already enacted for the prevention of fires. The law requires all teachers of public and private schools in buildings of more than one story to have at least one fire drill each month; also to instruct the pupils, in at least one lesson each quarter of the school-year, with reference to the causes and dangers of fires, the fire marshal furnishing bulletins containing outlines for such instruction.

The fire marshal may appoint any persons as state inspectors, who shall have powers to enter and inspect buildings and report to the marshal any dangerous conditions found therein.

The marshal must keep in his office a record of all fires occurring in the state, including data as to ownership, value, amount of insurance, cause of fire, etc.

*Kansas.* L. T. Hussey, Fire Marshal. The Department of State Fire Marshal was organized April 1, 1913. The organization consists of the fire marshal, chief deputy, chief clerk, stenographer and five deputies. Four of the deputies give their entire time to inspection work and investigation of incendiary fires, while the fifth gives his time largely to educational work. The funds for the support of the department are obtained by a special levy on the premiums collected by fire insurance companies within the state.

The department has power to enter and inspect premises and investigate fires, to hold inquisitions in the case of fires of suspicious origin and to prosecute parties suspected of arson, to regulate the handling, storage and transportation of gasoline and other inflammable and explosive materials, and to order the remedy or removal of serious fire hazards. The law provides penalties for failure to comply with reasonable orders issued by the department.

In conjunction with the State Fire Prevention Association the department makes frequent surveys of selected cities and towns. Ordinarily a large number of defects are found and the property owners or occupants are advised of the hazards and, where those hazards are of a serious nature, formal orders are issued by the department. Advice is frequently given by the department to communities relative to organizing for fire prevention work and improving the fire fighting equipment.

The law requires that all fires be reported to the department, but only those of suspicious origin are especially investigated by members of the department. The department maintains a clipping service by which it obtains from newspapers of the state all items relating to fires. The reports received from the fire chiefs and other officials are checked with these clippings, and whenever a clipping tells of a fire that has not been reported, a letter is mailed at once to the proper party asking for a report on this fire. In this way the statistical records of the department are made very accurate and complete.

Loss from fires of incendiary origin has been reduced steadily since the organization of the department. In the year 1916, 125 new cases of supposed incendiarism were investigated, ten incendiaries were convicted and one sent to the insane asylum. Many cases were dropped because of insufficient evidence or groundless suspicion. The marshal believes that a thorough and systematic inspection of every town in the state at least once every year is an imperative need, and that the cost of the service would not be a drop in the bucket as compared to the saving to the people of the state. Unfortunately, however, the funds at his disposal permit only a small amount of this to be done by his department.

A constant campaign of publicity and education is



carried on through the press, the issuing of bulletins of special and general nature, the delivering of addresses and the use of slides and moving pictures. The standardization of hydrants and hose connections has been promoted to a considerable extent.

As indicating one result of the work of the fire marshal, the number of incendiary fires for the years 1913-1916 inclusive have been as follows: 172, 140, 130, 126. During the same four years reduction in the losses from incendiary fires has been \$113,565, or about 40 per cent.

*Louisiana.* W. M. Campbell, State Fire Marshal. This department was organized about thirteen years ago. Its work consists of the education of the people in fire prevention, spreading information regarding the causes of fires, the means of prevention and the true significance of fire waste; the inspection of premises and ordering the removal of conditions conducive to fires; the investigation of fires of unknown and suspicious origin and the prosecution of the incendiaries; and the gathering and compiling of fire statistics. Mr. Campbell's report for 1916 states that he made 385 investigations as to hazardous conditions in the city of New Orleans as a result of complaints; while in three towns a house to house inspection was made and the results published. During the year, 470 fires reported as of unknown or supposed incendiary origin were investigated by this department.

*Maine.* E. J. Carter, Insurance Commissioner. The duty of fire marshal was placed upon the Insurance Department in 1897. The work has been carried on through employment of investigators or inspectors as conditions seem to warrant and as funds were provided for carrying on the work. Authority is given to hold hearings, summon witnesses, etc. No surveys of communities have been made. The department has consulted with communities in fire prevention work. All fires in the state must be reported to the office by the municipal officers and by insurance companies, and those regarded as suspicious are investigated whenever possible. The commissioner believes that incendiarism has been reduced, the records of the department for the past 20 years supporting this belief. The work of the department has been given publicity by means of bulletins, pamphlets, and the press. The matter of standardizing hydrant and hose connections has not been taken up by the department.

*Maryland.* Wm. Mason Shehan, Fire Commissioner. In 1916 the legislature abolished the office of fire marshal and transferred the duties thereof to the Insurance Department, without changing the law as to the powers and authority of the office. It made such insignificant appropriation, however, for the conduct of the office and the salary of the deputy commissioner, who was to be in charge of its administration, that it has been practically impossible to do anything. Under the law, the Insurance Department is called upon to investigate such fires as appear to be of incendiary or suspicious origin. Little or no appropriation is made for the prevention of fires. The law also empowers the department to take action with regard to fire-escapes, etc., but the appropriation has limited action to the investigation of the most serious of the suspicious fires. It is expected that the legislature meeting in January, 1918, will make an appropriation which will permit extending the service.

*Michigan.*—Frank H. Ellsworth, fire marshal. The State Fire Marshal Bureau was organized in 1911, the state commissioner of insurance being made ex-officio fire marshal and his deputy the ex-officio deputy fire marshal. The purpose of the law was to reduce the fire waste in the state and provide for the investigation of suspicious or incendiary fires. It provided for the appointment of inspectors and an office force and gave the marshal power

and authority to make inspections of property throughout the state. At the present time there are four inspectors out in the state and three clerks in the office. The inspectors, in addition to inspection of fire hazards and investigations, make two inspections of the moving picture theaters in Michigan each year. As in other states, fire chiefs or other local officers must report each fire, receiving 25 cents for each report; and fire insurance companies also must report each fire in which they are interested.

The marshal can summon witnesses, punish as a misdemeanor refusal to answer or produce documents, etc., as in the Pennsylvania law. He can order changes made in buildings in order to reduce the fire risk, but such orders may be changed by a circuit judge if considered by him to be too stringent; the judge's decision as to what an owner must do being final on both state and owner, and failure to comply with the terms of such decision forthwith being punishable as contempt of court, and in addition the fire marshal can carry out the order at the expense of the owner, and if such expense is not paid it shall be filed as a lien on his property plus a penalty of \$100.

In connection with the Michigan State Fire Prevention Association, organized through the efforts of the fire marshal and composed of the special and state agents of the various insurance companies, inspections are made each month of the business and manufacturing districts of one or more towns or cities and recommendations and orders are given for the correction of fire hazards therein.

Only suspicious or incendiary fires are investigated. The bureau is not able to say whether or not incendiarism has been reduced, but it has secured a considerable number of convictions and severe prison sentences have been imposed by the judges. Up to date it has found that over-insurance was responsible for the great majority of incendiary fires, but at present it is investigating a number for which it is convinced German agents or sympathizers were responsible. Acting assistant fire marshal Robinson reports: "We absolutely know that in many communities we have succeeded in stamping out the firebug who operates for the collection of his insurance. We are no doubt safe in stating that incendiarism in Michigan up to the beginning of the war had been reduced one-half at least."

The bureau issues a fire prevention bulletin twice a month and in addition sends out considerable literature to schools and fire chiefs and reaches the public through the press. The bureau has always urged the standardization of hose and hydrant connections in Michigan, and the State Firemen's Association and the Upper Peninsula Firemen's Association cooperate in this work.

*North Carolina.* James R. Young, Insurance Commissioner and State Fire Marshal.

The Insurance Department was established in 1899 and the Insurance Commissioner made ex-officio fire marshal. As fire marshal the insurance commissioner has nothing to do with insurance companies except to get whatever aid he can from them in his fire prevention work. As insurance commissioner he is required to place all insurance upon state property and to inspect the property regularly and see it is in proper condition. No state building can be erected until the plans have been approved by the commissioner so far as the protection of the building from fire is concerned and the safety of the inmates.

The commissioner is in charge of the Fire Marshal Department and has between \$25,000 and \$30,000 to spend, with power to appoint deputies and to organize the work and to have it carried out according to his judgment. He is allowed large discretion in the work. The work is

not only advisory and educational but the commissioner has the power to enforce his orders and to order corrected anything that is likely to produce fire or is dangerous in case of fire. He is also charged with the enforcement of the State Building Code and of the laws in regard to fire-escapes or proper exits. The commissioner has two deputies whose principal business is to investigate fires, get up evidence, etc. He also has one man whose principal business is to advise with the municipal authorities as to what they need in the way of fire protection, and how they can get the most out of what they have, and also to assist in training their fire departments. He is also charged with looking after buildings and inspection work.

Another deputy is the state electrical inspector, and his special duty is to look after local electrical conditions and inspectors and see they do their work, enforcing the law. All of these men spend their time in inspecting cities and towns and other risks throughout the state when not engaged in their special lines.

The commissioner receives reports of all fires in the state from the sheriffs of the counties outside of incorporated cities and towns, and from the officers of the towns where the fires occur within the corporation. Regularly he only has suspicious fires investigated, but is gradually expanding the work to take in all fires. Incendiarism and fires have been reduced under the work of this department, as is shown by reports covering fires in the state.

The insurance commissioner endeavors to use for publicity and educational work every possible means. He keeps in close touch with municipal departments, especially fire departments, enforcing the building and inspection laws, inspects in person and through deputies named above, as well as two women representatives of the Department of Farmers', Teachers' and Other Institutes and the public and private schools and colleges throughout the state. The department issues a large quantity of literature, signs, etc., in the work; has a moving picture machine, films and slides that are exhibited free throughout the state; holds annual institutes for the benefit of the state electrical inspectors and of the officers of the fire department. Of course there are other ways in which the publicity and educational work is carried on as observed in the Fire Prevention Day bulletins which are issued weekly and a page of plate matter issued monthly. The former goes to newspapers and all interested parties, and the latter is now going to and being used by the local newspapers who represent about 250,000 subscribers.

**North Dakota.** H. L. Reade, Fire Marshal. The office of fire marshal was created in 1913, the State Firemen's Association having backed the demand for the law. The marshal and his force is under the control of the State Insurance Department. The department consists of a marshal, chief assistant and deputy, any additional help needed being appointed by the commissioner of insurance with the consent of the governor.

The marshal enforces his orders through the county sheriffs and the state's attorneys backed up by the attorney general. He can subpoena witnesses, punish for contempt and has other broad powers for investigating suspicious fires. He has entire supervision over all places where a number of people congregate for any purpose, and can condemn or close up any place which he considers a menace to life or property through fire. During the four years of its existence, the marshal has done nothing in the way of making surveys of communities, but he advises communities in the organization of fire prevention work and has supervision over fire depart-

ments and fire fighting equipment. He receives reports of all fires from the fire chiefs, mayors or chairmen of town boards, and also from the insurance departments representing the different companies doing business in the state. He investigates only suspicious fires.

**Ohio.**—For this state, see article on page 439 by the state fire marshal, T. Alfred Fleming.

**Oregon.**—Harvey Wells, Insurance Commissioner. The department of insurance was organized under a law that became effective on May 21, 1917, the insurance commissioner being designated as ex-officio state fire marshal without additional compensation. The organization is limited by law to a deputy fire marshal and two assistants, with such clerical force as may be found necessary; but all municipal fire marshals, fire chiefs, police chiefs, town marshals and constables are designated as assistants. The marshal can make regulations concerning explosives and inflammable materials; is required to inspect all buildings and premises and has police power to require dangerous conditions to be remedied. For providing adequate protection for the lives of persons in places where they work, live or congregate, his authority is merely advisory.

The department is now engaged in making surveys of towns which have requested it, the cooperation of the local fire chiefs being obtained when possible. Insurance companies and adjusters are required to report all suspicious fires and also the total claims paid each month. Already a number of incendiary fires have been investigated and in all cases indictments have been secured against the offenders. Newspapers, municipal officers and business organizations have greatly assisted the department in publicity and educational work.

**Pennsylvania.** G. Chal. Port, Fire Marshal. The Department of the State Fire Marshal was established in 1911. A quite complete abstract of the act creating the department and the supplement of 1913 is given elsewhere in this issue. While the act provides for a first and second deputy, there are at present in the department 4 special deputies, 13 deputies, and approximately 2,700 assistants, together with the necessary clerical force for the proper conduct of the work. The duties of the deputies are the investigation of all fires of suspicious origin, the prosecution of the crime of arson, and the inspection of buildings for the purpose of removing all fire hazards, either by demolition of dilapidated buildings or correction of conditions. The department is continually making surveys or inspections of communities throughout the state, all properties being inspected and orders being served upon the owners or occupants of such properties as show conditions which need to be remedied. The fire hazards most generally found are the general dilapidation of buildings especially liable to fire and endangering other properties; accumulation of rubbish and the improper storage of gasoline, kerosene, naphtha and explosives. Fire Marshal Port believes that incendiarism in Pennsylvania is being gradually reduced and that, although fires for mercenary reasons probably will always continue, their reduction to a minimum is possible by vigorous investigation and successful prosecution.

**Tennessee.** E. D. M. Gillenwaters, Commissioner of Fire Prevention. The Department of Fire Prevention was created by the legislature in 1915. It is supported by a tax of one-half of 1 per cent on the net premiums of all fire insurance companies doing business in the state. The department consists of a commissioner, three deputies, a chief clerk and assistant clerk (both clerks being deputies). In addition there is in each county of the state and in nearly every town of the state an assist-



ant who reports to the department the fires in his district, and who is paid on a fee basis. The commissioner and all deputies have authority to inspect all premises and require the remedying of hazardous conditions; also to investigate fires of suspicious origin. Surveys of communities in the state are made by the State Inspection Bureau. While reports are received of all fires, only the suspicious ones are investigated. The department from time to time issues bulletins concerning fire prevention.

*Texas.* S. W. English, State Fire Marshal. Prior to 1913 there had been for two years a State Insurance Board. In 1913 the office of state fire marshal was created, the marshal being a member of the State Fire Insurance Commission, which commission promulgates all maximum fire insurance rates to be used by stock companies issuing insurance in the state. The marshal has two men actively engaged in fire investigations and three in inspections for eliminating fire hazards. The Fire Insurance Commission's rate inspectors make surveys of the communities for the purpose of publishing fire insurance rates, and the engineering department advises communities in organizing fire prevention work and in improving fire fighting facilities. The marshal receives reports on fires from some 300 city fire marshals throughout the state, and all fire insurance adjusters report direct to him on losses adjusted. He investigates all fires of a suspicious nature called to his attention. The engineering department of the insurance commission, together with officials of the State Volunteer Firemen's Association, are promoting the standardization of fire hydrants and hose couplings, work in which connection has been so satisfactory that it is hoped to secure a complete standardization throughout the state before long.

The 1913 law gives the state fire marshal power to take testimony and secure prosecution under practically the same conditions as under the Pennsylvania law; also to inspect buildings and require the destruction or repair of any which show unusual fire hazards.

*Wisconsin.* M. J. Cleary, State Fire Marshal. The office of fire marshal was created in 1907. A tax of  $\frac{3}{8}$  of 1 per cent is levied upon the net annual premiums received by insurance companies operating in the state, which money is used for the support of the fire marshal's department. The department consists of the insurance commissioner, who is ex-officio state fire marshal, a chief assistant, five deputies and a reporter. Until July 1, 1917, the department had not only police powers in the investigation of incendiary losses, but also had power of condemnation of such fire hazards as were a menace to public safety; but since July 1, the fire prevention and safety activities of the department have been transferred to the Industrial Commission, the expense of which is still borne by the fire marshal's department.

Surveys of communities have been made by the department in the inspection of fire hazards and fire conditions surrounding the same. The chiefs of fire departments or their representatives are required to make quarterly inspections of general fire conditions and report the same to the fire marshal's department with the necessary recommendations. The fire marshal's department then pursues the matter of reinspection and, where conditions warrant, issues an order to remedy the same.

The department joined with the State Fire Prevention Association in organizing fire prevention work in the communities of the state. It supervised the standardization of fire departments, and it was only upon the recommendation of the fire marshal's department that the several fire departments of the state were able to secure their fire department dues. The department receives reports of every fire loss in the state, which are classified

and kept on file. The report for the year 1916 showed 6 per cent of the fires as being of incendiary origin, as compared with 10 per cent in the first annual report of the department.

*British Columbia.* H. G. Ganett, Superintendent of Insurance. The Department of Insurance was established in 1911 for the purpose of licensing and regulating insurance companies doing business in the province. The act confers upon the department certain powers of inspection. The fire insurance companies are required to report to the department all fires on which they carry insurance and the state and district authorities also report all fires and the causes assigned and values destroyed. Suspicious fires are investigated and convictions of guilty parties secured when possible.

*Ontario.* E. P. Heaton, Fire Marshal. This office was organized in October, 1916, and since then has devoted all energies to diagnosis of the fire waste of the province, the results of which investigations are published in a "Monthly Public Service Bulletin," issued by the government. The department has not yet seriously undertaken any fire prevention work, but such is now under consideration and plans are being laid for future operations. The fire marshal is appointed by the lieutenant governor, who also may appoint as many deputy fire marshals as he considers necessary, which deputies possess the powers and perform the duties of fire marshal in the respective localities for which they are appointed and are under the direction of the fire marshal. The salaries of fire marshal and deputy fire marshals and the necessary officers and clerks are fixed by the lieutenant governor, and the respective duties of these are prescribed by him.

The fire marshal has authority to investigate the causes of fires; inspect buildings, order dangerous conditions remedied, order the withholding of payment of insurance money for a period not exceeding 60 days pending investigation of the cause of the fire, and report to the Crown Attorney any evidence of arson or other illegal act. The fire insurance companies must report fires damaging property insured by them within three days after they receive notice of such loss. Expenses of the department are to be met by a tax of not more than one-third of 1 per cent of the premiums received by licensed companies and 1 per cent of the loss claimed by any person on property insured in a company not licensed under the Ontario Insurance Act.

*Saskatchewan.* The office of Fire Marshal was established in 1913 and in 1916 was combined with that of superintendent of insurance. The expenses of the office are met by a tax of one-third of 1 per cent on the premiums received by insurance companies. The department consists of a fire marshal, a deputy fire marshal and three inspectors. Two of the inspectors investigate the origin of fires and at the same time inspect cities, towns and villages from a fire prevention standpoint. Two men are assigned to the inspection of risks. The fire commissioner and deputies, inspectors and other assistants are all appointed by the lieutenant governor and their salaries fixed by him. Fire chiefs, mayors and village overseers are made assistants of the fire commissioner, as in many states of the United States, and are required to report all fires. The fire commissioner is required to enforce laws concerning fire prevention, combustibles and explosives, fire alarm systems and fire extinguishers, fire-escapes and exits, and the suppression of arson, and to investigate causes of fires. The various methods of investigating fires, summoning witnesses, remedying fire hazards, etc., are similar to those in many of the states. Standardization of hydrant and hose connections has not been considered by the department.

TABLE No. 1—THE CITY AND THE FORCE.

City and State	Population	Area of city square miles	No. of regular men	No. of officers	No. of volunteers	Percentage of volunteers in 1915.	1913.	1911.	Effect of replacing volunteers by paid men?	Salary of regular men?	Has it been increased during past year?	What cent?	Trouble in getting enough good men?	Is Dept. under civil service?
<b>Alabama:</b>														
Brewton	2,500	1	none	4	25	40	40	30	none	\$27-\$66	Yes	10	Yes	No
Gadsden	20,000	5	4	2	25	40	40	30	more efficient service	55	Yes	11	No	No
Huntsville	9,832	2	9	2	14	..	..	..	..	60	Yes	10	..	No
Selma	19,000	..	20	3	10	..	..	..	..	..	..	..	..	No
<b>Arizona:</b>														
Bisbee	15,000	2 1/2	10	3	none	none	none	..	cut losses; increased efficiency	115	Yes	15	at times	No
Douglas	13,000	1 1/2	9	3	51	all	all	all	..	125	Yes	25	No	No
Nogales	6,300	2	28	8	50	all	all	96	increased efficiency	85-110	..	..	No	No
Tucson	26,000	4.35	28	10	120	13	95	..	..	..	..	..	No	No
<b>Arkansas:</b>														
El Dorado	5,000	4	..	..	10	all	all	all	..	..	..	10, 15 & 20	No	No
Ft. Smith	35,000	13	28	5	..	..	..	..	..	80	Yes	..	Yes	Yes
Jonesboro	10,000	3	36	3	10	..	..	..	..	70-85	Yes	..	No	No
Little Rock	65,000	22.5	36	14	none	none	none	..	..	80-95	new scale	..	..	No
Prescott	3,500	14	..	..	14	..	..	..	..	..	..	..	..	No
Russellville	5,500	2 1/2	..	..	12	..	..	..	..	..	..	..	..	No
<b>California:</b>														
Alameda	30,000	23.05	21	3	28	..	..	..	..	95	No	..	Yes	partly
Berkeley	67,500	10	50	24	none	none	none	25	..	80-90-100	No	..	No	No
Bishop	7,700	..	..	4	25	25	25	15	none	..	..	..	No	No
Coalinga	5,000	..	..	1	16	15	15	..	..	125	Yes	10	Yes	No
Emeryville	3,000	1.13	5	1	..	..	..	..	..	75-100	No	..	No	No
Hayward	4,000	2	2	10	25	..	..	..	..	75	No	..	No	No
Long Beach	35,000	13	33	7	..	..	..	..	..	75-95	No	..	No	No
Modesto	9,600	9	14	2	20	20*	20*	50	marked efficiency	65-100	Yes	..	Yes	No
Monrovia	5,500	5	14	4	12	75	67	..	..	45-90	No	..	Yes	No
Oakland	250,000	36	275	5	..	all	all	all	..	115	..	..	Yes	Yes
Palo Alto	47,000	13	51	7	55	..	..	..	..	80	No	..	No	No
Pasadena	7,000	..	..	..	14	..	..	..	..	80-90	Yes	5	No	Yes
Petaluma	15,000	4	..	..	..	..	..	..	..	100-125	No	..	No	No
Pomona	12,000	12.5	4	1	30	..	..	..	..	75	No	..	No	No
Redlands	22,000	16 1/2	20	3	13	60	60	60	very good	85-100	No	..	No	No
Richmond	4,500	6	2	3	none	none	all	all	reduction in losses	90-105	Yes	20	No	No
San Leandro	4,500	..	2	2	8	..	..	..	..	85	Yes	..	No	No
San Rafael	6,000	..	2	6	100	..	..	..	..	90	No	..	No	No
Santa Ana	8,429	..	4	3	75	75	60	60	very beneficial	90	Yes	7	No	No
Santa Barbara	23,000	..	5	..	..	..	..	..	..	95-100	Yes	15-25	Yes	No
Santa Monica	15,000	1 1/2	11	3	14	50	50	60	excellent	80-100	No	..	No	Yes
Santa Rosa	12,500	7 1/2	37	10	6	..	..	..	..	80-90	Yes	7	No	No
Stockton	42,500	2	none	..	none	none	none	none	..	102	..	..	No	Yes
Ventura	4,000	2	15	5	16	90	70	70	..	75-100	..	15	No	..
Watsonville	6,000	3 1/2	15	5	45	100	100	100	..	5	No	..	No	No
Whittier	8,000	..	..	..	15	..	..	..	..	..	..	..	..	No
<b>Colorado:</b>														
Boulder	12,500	..	5	3	..	..	..	..	..	75	No	..	Yes	No
Colorado Spgs.	50,000	..	42	13	..	15	30	30	..	75-85	No	..	not yet	Yes
Ft. Collins	12,000	5	4	1	none	62	62	75	good	65	No	..	No	Yes
Grand Junction	5,534	2	..	1	8	..	..	..	more efficiency	75	No	..	No	Yes
Idaho Spgs.	2,200	1 1/2	..	10	65	..	..	..	..	..	..	..	..	No
Longmont	5,000	1 1/2	2	1	10	same	same	..	..	65	No	..	Yes	No
Trinidad	15,000	5 1/2	9	3	6	33	50	60	Increased efficiency and discipline	100	Yes	10	No	No
Salida	5,500	3	3	..	1	..	..	..	..	85	Yes	6	No	Yes
<b>Connecticut:</b>														
Bridgeport	180,000	..	173	44	none	..	..	..	efficient department	1,400	Yes	16%	No	No
Danbury	24,000	7	15	3	200	..	..	..	very good	1,000	No	..	No	No
Greenwich	3,600	9	2	12	150	..	..	..	..	1,200	No	..	No	No
Hartford	130,000	18	157	12	..	..	..	..	..	1,320	Yes	10	Yes	No
New Britain	60,000	13.2	41	14	..	..	..	..	..	1,000-1,200	Yes	10	Yes	Yes
New Haven	150,000	18	130	40	55	0	0	0	..	1,050 & up	..	8	No	Yes
Norwich	30,000	5.7	19	7	40	100	100	100	..	..	..	..	No	Yes
So. Manchester	18,000	5	1	10	160	100	100	100	..	78	Yes	..	No	No
Stratford	15,000	35	1	1	100	100	100	100	..	1,300	..	..	No	No
Sturfield	4,100	..	..	..	..	..	..	..	..	..	..	..	No	Yes
Torrington	25,000	14	7	8	40	100	100	100	good	2,75 & 3.75	..	10	No	No
Waterbury	95,000	23	64	21	50	100	100	100	..	1,277.50	Yes	25c per day	No	No
Wethersfield	2,500	12	..	4	50	100	100	100	..	..	..	..	No	No
<b>District of Columbia:</b>														
Washington	331,069	70	503	129	..	..	..	..	..	1,254	Yes	5 & 10	Yes	Yes
<b>Florida:</b>														
Daytona	6,000	6	2	..	38	..	..	..	..	77-85	No	..	Yes	No
Lakeland	9,000	1 1/2	5	..	8	98	100	100	more men for quick service	60	Yes	..	none	No
Plant City	4,000	..	..	4	16	75	75	75	..	1,500	No	..	No	No
Quincy	3,570	1 1/2	3	2	20	100	100	100	..	..	Yes	15	No	No



[illegible]

For footnotes, see page 459.

TABLE No. 1—THE CITY AND THE FORCE (Continued).

City and State	Popula- tion.	Area of city square miles.	No. of regular men.	No. of officers.	Percentage of volunteers in			Effect of replacing volunteers by paid men?	Salary of regular men?	Has it been increased during past year?	What per cent?	Trouble in getting enough good men?	Is Dept. under civil service?
					1915.	1913.	1911.						
Iowa:													
Burlington	25,000	10	22	3	none	none	none	.....	65-80	Yes	6%	No	Yes
Cedar Rapids	44,000	13	33	7	none	none	none	.....	84.16	Yes	5	No	Yes
Council Bluffs	32,000	16	24	3	none	none	none	.....	85	Yes	\$5	Yes	Yes
Davenport	55,000	10 1/2	55	12	none	none	none	better results	90	Yes	\$7.50	No	Yes
Denison	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	No	No
Fairfield	6,100	2 1/2	1	3	10	.....	.....	.....	75	No	30	No	No
Grinnell	6,000	2 1/2	2	4	50	.....	.....	.....	90	Yes	8	No	Yes
Keokuk	17,000	5 1/2	11	2	none	all are volunteers	all volunteers prior to January 1, 1914	.....	70	Yes	.....	No	No
Le Mars	5,250	1	3	40	125	.....	.....	.....	.....	.....	.....	No	No
Marion City	4,800	.....	.....	5	.....	.....	.....	.....	.....	.....	.....	No	No
Mason City	20,000	.....	14	1	.....	98	100	reduction of losses	65-75	.....	8	No	Yes
Muscatine	17,000	6.7	14	3	none	99	100	.....	.....	.....	.....	No	No
New Hampton	3,000	1 1/2	7	7	90	.....	.....	.....	65-75	.....	.....	No	No
Oelwein	7,500	1	2	8	40	35	35	.....	70	No	.....	No	No
Sioux City	66,000	44	52	10	40	.....	.....	.....	70-91.50	Yes	8-10	Yes	Yes
Washington	1 1/2	1 1/2	2	3	30	.....	.....	.....	70	Yes	20	No	No
Waterloo	22,693	13.3	20	4	none	none	none	.....	85	Yes	\$5	.....	.....
Kansas:													
Cherrydale	5,000	4	3	.....	.....	.....	.....	better service	65-75	Yes	\$10	No	No
Fredonia	3,500	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	No	No
Holton	3,000	.....	1	.....	18	.....	.....	.....	65	Yes	10	No	Yes
Independence	12,500	10	115	2	none	.....	.....	.....	65	Yes	5	No	No
Kansas City	100,000	17 1/2	.....	4	none	.....	.....	.....	65-90	Yes	.....	No	No
Mulberry	2,600	1	.....	1	18	.....	.....	.....	.....	.....	.....	No	No
Newton	10,000	.....	5	2	9	.....	.....	.....	60-85	Yes	10	some	No
Olathe	3,700	4	1	2	15	.....	.....	.....	95	No	.....	No	No
Ottawa	9,700	.....	2	.....	.....	.....	.....	.....	65	No	.....	Yes	Yes
Parsons	20,000	2	12	6	.....	.....	.....	.....	85	Yes	10	Yes	Yes
Topeka	53,000	8 1/2	77	16	.....	.....	.....	.....	80	No	.....	No	No
Kentucky:													
Cynthiana	5,000	.....	1	.....	36	36	36	.....	60	No	.....	No	No
Harrodsburg	4,000	4	13	.....	15	100	75	.....	70	Yes	16%	No	Yes
Henderson	13,000	4	4	3	none	none	none	very satisfactory	.....	Yes	.....	No	No
Hopkinsville	13,000	.....	13	2	8	.....	.....	.....	60	No	.....	No	No
Lexington	42,000	7	50	7	none	.....	.....	.....	80	No	.....	Yes	No
Richmond	6,000	.....	13	2	.....	.....	.....	.....	.....	.....	.....	No	No
Russellville	4,000	1	12	3	.....	.....	.....	.....	.....	.....	.....	No	No
Louisiana:													
Jennings	5,000	2 1/2	339	2	15	15	.....	.....	75	No	.....	No	Yes
New Orleans	339,075	196 1/2	.....	122	30	.....	.....	.....	.....	.....	.....	.....	.....
Winnfield	4,000	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Maine:													
Augusta	14,000	.....	4	1	72	49	49	.....	384	.....	.....	No	Yes
Biddeford	19,000	.....	7	2	49	.....	.....	.....	100	Yes	10	No	No
Calais	7,500	.....	23	5	none	.....	.....	.....	.....	.....	.....	No	No
Camden	3,500	5	.....	3	49	.....	.....	.....	.....	.....	.....	No	No
Dexter	4,500	2	.....	8	76	76	76	.....	.....	.....	.....	No	No
Hallowell	3,000	1	4	.....	.....	.....	.....	.....	.....	.....	.....	No	No
Kennebunk	3,000	4	.....	12	80	.....	.....	.....	.....	.....	.....	No	No
Norway	.....	1	.....	15	60	.....	.....	.....	75-95	No	.....	No	No
Portland	62,000	18	98	31	60	.....	.....	.....	80	No	2.5	No	No
Rumford	6,000	4	2	3	60	.....	.....	.....	975	Yes	.....	No	No
Skowhegan	5,500	3	2	6	36	80	.....	greater efficiency	900	No	.....	No	No
Maryland:													
Baltimore	600,000	33 1/2	797	124	.....	.....	.....	.....	.....	.....	.....	.....	Yes
Massachusetts:													
Adams	15,000	.....	.....	5	40	.....	.....	.....	.....	.....	.....	No	Yes
Belmont	8,500	15	23	4	none	.....	.....	.....	95	Yes	10.00	No	Yes
Beverly	23,000	21.6	55	20	87	.....	.....	good	3.25 day	No	.....	No	No
Brockton	63,000	6	97	27	none	.....	.....	.....	1,000-1,400	Yes	16%	Yes	Yes
Cambridge	120,000	12	77	27	.....	.....	.....	.....	1,350	Yes	50	No	Yes
Dedham	12,000	.....	42	.....	.....	.....	.....	.....	1,100	Yes	10	No	Yes
Fitchburg	39,658	28.38	45	16	63	90	90	more efficient work	3.10 to 3.28	Yes	7.8, 9	at times	Yes
Foxboro	3,750	.....	2	27	27	90	90	.....	.....	.....	.....	No	No
Framingham	17,200	23	14	4	25	100	100	less fire loss	3.00	Yes	25c	No	Yes
Gardner	17,000	23	26	10	58	100	100	less fire loss	3.00	Yes	10	No	Yes
Gloucester	24,500	30	5	5	150	80	80	.....	1,100	Yes	10	No	No
Greenfield	15,000	3	23	5	52	.....	.....	.....	.....	.....	.....	No	No
Haverhill	50,000	33	25	18	100	100	100	.....	3.50-4.00	Yes	50-62 1/2c	No	Yes
Hingham	5,500	7 1/2	70	20	none	none	none	good	1,000	Yes	12	No	No
Lawrence	100,000	14.1	.....	.....	.....	.....	.....	.....	3.75	Yes	50c	No	Yes
Lowell	110,000	.....	.....	.....	none	none	none	.....	3.30	Yes	10	No	Yes



Ladlow	7,000	11 1/2	29	50	none	none	none	none	none	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
--------	-------	--------	----	----	------	------	------	------	------	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

*For footnotes, see page 459.*

TABLE No. 1—THE CITY AND THE FORCE (Continued).

City and State	Popula- tion.	Area of city square miles.	No. of regular men.	No. of volun- teers.	Percentage of volunteers in			Effect of replacing volunteers by paid men?	Salary of men?	Has it been increased during past year?	What per cent?	Trouble in getting enough good men?	Is Dept. under civil service?
					1915.	1913.	1911.						
Missouri (Continued):													
Kansas City.....	300,000	60	270	85	..	..	..	..	85	No	..	Yes	Yes
Marionville.....	6,500	5	7	..	..	..	..	..	70	No	..	No	No
Moberly.....	14,000	1 1/2	..	..	7 1/2	14 1/2	..	..	60	No	..	Yes	No
Monett.....	5,000	4	1	..	..	..	..	..	..	No	..	No	No
Poplar Bluff.....	12,000	4	2	..	10 1/2	10 1/2	..	..	70	No	..	No	No
St. Charles.....	10,000	3	4	2	88	88	..	loss been reduced	60-65	No	..	No	No
St. Louis.....	905,692	3	838	16	..	..	..	..	105	No	..	No	No
Springfield.....	55,000	8	41	7	..	..	..	..	83.33	Yes	8 1/2-10	Yes	Yes
Washington.....	5,500	4	..	..	..	..	..	..	..	..	..	..	..
Webster Groves.....	10,000	4	7	4	all	all	all	reduced insurance; better protection	60-70	Yes	\$5-\$10	No	No
Nebraska:													
Nebraska City.....	6,000	8	2	..	50	20	50	none	60-75	No	10	No	No
Norfolk.....	3,600	9	2	4	100	100	75	none	70	Yes	..	No	No
Nevada:													
Reno.....	15,000	..	20	5	none	none	none	..	100 1/2	Yes	5	No	No
New Hampshire:													
Concord.....	21,497	63	13	..	200 1/2	..	..	more efficient service	1,000-1,050	Yes	15-19	No	No
Laconia.....	1,000	8	..	..	..	..	..	more efficiency	1,000	Yes	10	No	No
Nashua.....	26,005	32	28	6	..	..	..	..	1,050	No	..	No	No
New Jersey:													
Flemington.....	3,200	5	..	..	100	100	100	..	..	..	..	..	..
Freeland.....	4,000	3	3	..	135	100	100	..	..	..	..	No	No
Glen Ridge.....	4,000	3	3	..	40	same	..	..	1,140	Yes	12	Yes	Yes
Hackensack.....	17,000	4	15	4	30 1/2	..	..	less fire loss	90	Yes	15	No	No
Haddonfield.....	5,300	4	..	..	50	100	100	..	..	..	..	No	No
Hammononton.....	6,500	10	..	..	34	100	100	..	..	..	..	..	..
Irvington.....	2,300	9	3	..	25	..	..	..	75-100	..	..	..	..
Jersey City.....	300,000	19.2	252	52	..	..	..	..	1,300	No	..	No	Yes
Kenworthy.....	1,100	10	4	..	26	..	..	..	..	..	..	No	No
Lambertville.....	5,000	1	..	3	180	all	all	..	..	..	..	No	No
Millville.....	15,000	1	..	..	42	100	100	..	..	..	..	No	No
Pittman.....	3,000	..	..	..	207	..	..	..	..	..	..	No	No
Plainfield.....	20,550	6	32	6	31	..	..	better in every way	\$514.08*	some	10	Yes	No
Rosevelt.....	12,000	9	..	7	50	100	100	Good	100	Yes	..	No	No
Woodstown.....	1,500	..	..	..	31	..	..	..	..	..	..	..	..
New Mexico:													
Raton.....	5,700	2 1/2	2	..	12 1/2	all	all	none	85	Yes	4 1/2	No	No
Roswell.....	8,000	..	7	3	5	50	75	90% more efficiency	60 1/2	No	..	Yes	No
New York:													
Albany.....	120,000	19.4	126	38	..	..	..	..	900-1,100	Yes	\$100	No	Yes
Amityville.....	2,800	6	..	110	..	..	..	..	..	..	..	..	..
Auburn.....	37,000	9	47	8	none	..	..	..	1,000	No	..	No	Yes
Batavia.....	14,000	..	10	1	..	..	..	saving of 66%	60-70	No	..	No	Yes
Binghamton.....	53,970	10	80	5	..	..	..	..	780-1,140	No	..	Yes	Yes
Brockport.....	3,750	1 1/2	..	18	125	100	100	..	..	..	..	No	No
Canastota.....	3,500	2	none	3	75	100	100	..	..	..	..	..	..
Cohoes.....	25,000	4 1/2	21	5	156	some	some	Improvement in service	70-85	Yes	15	No	Yes
Corning.....	15,000	..	10	4	135	..	..	..	960	Yes	..	Yes	No
Elmira Heights.....	4,500	5	..	..	50	100	100	..	..	..	..	..	..
Frankfort.....	4,200	..	..	..	80	..	..	..	..	..	..	..	..
Freeport.....	8,500	5	..	17	27 1/2	all	all	..	..	..	..	..	..
Fulton.....	12,000	..	8	3	16 1/2	..	..	..	66	No	..	No	No
Geneva.....	14,000	4	4	13	22 1/2	some	some	more efficient	70	No	\$10	No	Yes
Gloversville.....	22,000	5	12	3	15 1/2	..	..	..	80	Yes	..	No	Yes
Goshen.....	3,500	4	..	..	120	..	..	..	..	..	..	..	..
Herkimer.....	11,000	1 1/2	2	3	137	..	..	..	70-75	Yes	\$5	No	No
Jamestown.....	38,780	10 1/2	42	3	none	..	..	..	85	Yes	\$5	No	No
Johnson City.....	8,000	2	4	3	30 1/2	50 1/2	60 1/2	Good	85-90	Yes	8	No	No
Liberty.....	2,800	1	none	12	114	100	100	..	70-80	Yes	\$10	No	Yes
Little Falls.....	14,000	..	5	3	90 1/2	..	..	..	..	..	..	No	No
Lowville.....	2,800	1.3	..	..	58	all	all	..	..	..	..	No	No
Mamaroneck.....	7,000	17	..	14	250	70	70	..	..	..	..	No	No
Mechanicville.....	8,500	..	..	..	180	..	..	..	82.50	Yes	10	No	..
Middletown.....	17,000	..	7	10	30 1/2	some	some	..	65-85	Yes	\$15 1/2	No	No
New Rochelle.....	36,000	..	28	1	316	..	..	..	1,000-1,450	Yes	14.3	No	Yes
New York.....	4,766,883	314.7	5,134	800	93 1/2	..	..	..	80	..	..	No	No
Oswego.....	25,000	7.8	18	5	8 1/2	some	some	..	787-91	No	..	No	No
Patchogue.....	5,000	2	none	4	250	100	100	..	66	Yes	12	No	Yes
Peekskill.....	15,000	..	6	18	400	..	..	..	70-80	Yes	\$5	Yes	Yes
Plattsburg.....	10,000	..	23	6	12	100	100	Good	75-100	Yes	20	No	No
Rome.....	25,000	4	23	15	100	100	100	fires extinguished quicker	..	..	..	..	..
Rye.....	5,500	1.2	2	15	170	..	..	..	..	..	..	..	..



	3	2	9	80	65	67	72	good	70 per month	No		partially
Scotia	5	2	12	90	150 <sup>a</sup>	150 <sup>a</sup>	150 <sup>a</sup>	Good	100	Yes	No	No
Silver Creek	3	216	1	none	150 <sup>a</sup>	150 <sup>a</sup>	150 <sup>a</sup>	Good	75-100	Yes	No	No
Solvay	19	96	26	110	all	all	all	Good	1,062.60	Yes	No	Yes
Syracuse	15	2	4	150	all	all	all	Good	78	Yes	No	Yes
Tonawanda	4	2	5	2	some	some	some	Good	60	Yes	No	No
Utica	15	6	24 <sup>10</sup>	76	some	some	some	better service	90	No	No	No
Watkins	3	92	29	600	..	..	..	..	850-1,300	Yes	No	Yes
Warsaw	4	7	..	40	16	16	16	..	85	Yes	No	modified
Waverly	4 1/2	3.87	20	..	..	..	..	best of service	\$60 & \$65	Yes	No	No
Westfield	9	3	4	56	90	90	90	..	60	Yes	No	No
White Plains	22,000	1	6	25	..	..	..	..	60-70	Yes	No	No
Whitesboro	3,000	23	5	none	none	none	80	Good	..	..	No	Yes
Yonkers	95,000	4	23	none	..	..	..	..	..	..	No	No
North Carolina:												
Asheville	30,000	13	7	40	16	16	16	..	85	Yes	No	modified
Durham	26,060	2	4	..	..	..	..	..	\$60 & \$65	Yes	No	No
Kinston	12,000	3	4	56	90	90	90	..	60	Yes	No	No
Mooreville	5,000	1	6	25	..	..	..	..	..	..	No	No
Raleigh	30,000	4	23	none	none	none	80	Good	..	..	No	Yes
North Dakota:												
Carrington	1,500	1	1	40	all	52 <sup>a</sup>	60 <sup>a</sup>	..	..	..	No	..
Jamestown	6,000	2	1	52	50 <sup>a</sup>	50 <sup>a</sup>	50 <sup>a</sup>	..	75	..	No	..
Valley City	6,000	6	5	40	some	some	..	..	..	..	No	..
Williston	5,216	4	2	17	..	..	..	..	..	..	No	..
Ohio:												
Akron	155,000	25	92	none	none	none	none	efficiency and discipline better	85 <sup>a</sup>	Yes	Not much	Yes
Alliance	23,000	17	5	50	..	..	..	..	103.50	Yes	No	Yes
Ashland	6,795	3	3	20	..	..	..	..	70	No	No	Yes
Bellaire	15,000	4	4	20	..	..	..	..	90	Yes	Yes	Yes
Bellevue	10,000	3	7	8 <sup>a</sup>	..	..	..	..	70	Yes	Yes	Yes
Bryan	4,612	4	1	14	14 <sup>a</sup>	14 <sup>a</sup>	14 <sup>a</sup>	..	91.50	Yes	No	No
Bucyrus	10,000	4	4	14 <sup>a</sup>	all	all	all	very good	80	Yes	Yes	Yes
Carrington	2,250	4	1	30	all	all	all	..	..	..	No	No
Cleveland	750,000	55	227	none	..	..	..	..	112	Yes	Yes	Yes
Columbus	240,000	22.4	180	..	..	..	..	..	100	Yes	Yes	Yes
Conneaut	12,000	4	11	none	none	..	..	Good	85	Yes	..	Yes
Crestline	4,000	1	1	21	..	..	..	..	..	..	No	No
Dennison	4,200	1	1	..	..	..	..	..	..	..	No	No
East Cleveland	23,000	2	5	none	..	..	..	efficiency	133.50	..	No	Yes
East Palestine	6,000	7	7	50	some	some	some	more efficiency	100	Yes	No	Yes
Elyria	25,000	10	14	none	..	..	..	..	75	No	Yes	Yes
Findlay	15,500	3	3	10	some	some	some	..	65	Yes	No	Yes
Greenfield	6,000	2 1/2	5	2	..	..	..	..	83	No	No	No
Jackson	1,500	4	3	25	..	..	..	..	..	..	No	No
Jefferson	8,000	..	4	11	..	..	..	..	75	No	Yes	Yes
Kentwood	40,000	6 1/2	22	4	none	50	75	more efficiency	112	Yes	Yes	Yes
Lakewood	4,300	16	4	none	..	..	..	..	85	No	No	No
Lebanon	42,000	..	25	10	..	..	..	..	1,276	Yes	Yes	Yes
Lima	40,000	10 1/2	31	115	some	some	some	..	70-80	No	Yes	Yes
Loraine	18,000	6	12	70	..	60	..	..	..	..	Yes	Yes
Martins Ferry	13,000	1	9	..	..	..	..	..	90	Yes	No	Yes
Middletown	24,000	2	5	none	..	..	..	..	70	Yes	No	Yes
Mt. Vernon	10,000	2	6	20	some	some	some	..	90	Yes	No	Yes
N. Philadelphia	10,000	6	4	25	all	all	all	..	86	..	No	No
Oberlin	5,000	4	1	25	75	..	..	..	..	..	No	No
Orville	5,000	3	25	2	..	..	..	Reduced fire loss 45%	75	Yes	Yes	Yes
Portsmouth	27,000	2	12	none	..	..	..	..	..	..	Yes	Yes
Salem	10,000	13	40	100	..	..	..	..	..	..	No	Yes
Springfield	65,000	2	12	none	none	none	none	..	30	Yes	No	Yes
Toledo	272,665	31.7	234	..	..	..	..	..	100	Yes	No	Yes
Warren	25,000	4	10	..	..	..	..	..	106	Yes	No	Yes
Weston	950	1	4	15	100	100	100	..	110	Yes	No	No
Youngstown	120,000	25	69	23	none	none	none	..	..	..	No	Yes
Oklahoma:												
Ada	8,500	3	4	12	40	40	40	..	60-80	Yes	Yes	No
Bartlesville	15,000	5	3	2	..	..	..	..	75-85	Yes	Yes	Yes
Chickasha	16,000	2 1/2	10	none	none	none	none	..	77	Yes	No	No
Hugo	8,000	8	3	12	..	..	..	..	65-75	Yes	No	No
Miami	7,500	2 1/2	2	50	50	50	50	Good	65-75	Yes	Yes	No
Sapulpa	12,000	1 1/2	11	..	..	..	..	..	85	Yes	No	No
Oregon:												
Astoria	18,000	5	11	18 <sup>a</sup>	20 <sup>a</sup>	20 <sup>a</sup>	20 <sup>a</sup>	good effect on department	100	Yes	No	No
Baker	10,000	..	4	112	20	20	20	..	85	Yes	No	No
Corvallis	7,000	2	15	..	..	..	..	..	75	Yes	No	No
Marshfield	5,000	6	6	35	some	some	some	Good	90-120	Yes	No	No
Roseburg	6,000	4	1	12	all	all	all	excellent	65	Not yet	Yes	No

For footnotes, see page 450.

**TABLE No. 1—THE CITY AND THE FORCE (Continued).**

City and State	Popula- tion.	Area of city square miles.	No. of regular men.	No. of officers.	No. of volun- teers.	Percentage of volunteers in			Effect of replacing volunteers by paid men?	Salary of regular men?	Has it been increased during past year?	What per cent?	Trouble in getting good men?	Is Dept. under civil service?
						1915.	1913.	1911.						
Pennsylvania:														
Altoona .....	52,127	3.6	58	11	14*	..	..	..	..	66-91	Yes	10	Yes	Yes
Bangor .....	5,369	3	1	3	110	..	..	..	..	..	..	..	No	No
Beaver Falls .....	3,500	1	4	5	38	..	..	..	reduction in loss	80-100	Yes	\$10	Yes	No
Bellwood .....	15,000	1½	..	..	45	..	25*	..	..	..	..	..	..	..
Blairsville .....	6,000	1½	..	..	50	35*	25*	..	..	..	..	..	..	..
Bristol .....	12,000	2	..	..	500	same	same	..	..	700	Yes	10	No	No
Brookville .....	4,000	4	5	5	800	..	..	..	..	..	..	..	..	..
Carlisle .....	10,303	2	..	..	300	50*	49*	reduces fire loss	80-100	Yes	15	No	No	In 1918
Clearefield .....	8,500	2	7	2	42	..	60*	..	..	114	Yes	33	No	Yes
Connellsville .....	15,000	2	6	..	50	40*	40*	..	good	85	Yes	\$10	No	Yes
Duquesne .....	9,000	3½	26	3	13*	13	..	..	..	..	Yes	\$5	Yes	Yes
Easton .....	30,530	9	3	2	58	..	..	..	..	..	..	..	..	..
Franklin .....	13,000	8	..	..	40	..	..	..	..	..	..	..	..	..
Gallatin .....	4,000	1	..	..	3	..	..	..	..	..	..	..	..	..
Girardville .....	5,247	1	..	..	400	..	..	..	..	..	..	..	..	..
Jeanette .....	10,000	1	4	1	32	85	80	70	..	90	Yes	\$12.50	No	Yes
Jersey Shore .....	7,000	3½	..	5	275	..	..	..	..	..	..	..	..	..
Lansford .....	12,000	1	..	..	125	..	..	..	..	..	..	..	..	..
Latrobe .....	10,000	1	..	..	300	250*	200*	..	..	..	..	..	..	..
Leighton .....	7,000	1	..	..	39	..	..	..	..	..	..	..	..	..
Mt. Union .....	8,000	2½	..	5	1,500	..	..	..	..	..	..	..	..	..
Norristown .....	30,000	6	..	2	121	..	..	..	very good	70-80	Yes	\$5	Yes	Yes
Oil City .....	20,000	4.2	906	174	none	none	none	..	\$1,000-\$1,200	Yes	10	No	No	Yes
Philadelphia .....	1,549,008	129.6	906	151	none	none	none	..	..	No	..	..	No	Yes
Pittsburgh .....	580,000	40.7	..	9	125	all	all	..	..	..	10	No	No	No
Plymouth .....	17,000	1.1	3	..	..	..	..	..	..	..	..	..	..	..
Pottstown .....	16,000	5	..	10	50	..	..	..	..	..	..	..	..	..
Quakertown .....	5,500	12	..	3	5,800	..	..	..	..	..	..	..	..	..
Reading .....	100,000	65	4	7	96	85*	81*	..	..	85-125	Yes	25	No	No
Scottsdale .....	7,000	1	..	10	75	..	..	..	..	..	..	..	..	..
South Fork .....	6,000	1	..	11	1,100	..	..	..	..	..	..	..	..	..
Sunbury .....	13,770	3	7	4	42	36*	36*	..	..	..	..	..	..	..
Turtle Creek .....	9,500	..	..	30	300	..	..	..	..	..	..	..	..	..
Tyrone .....	8,000	..	..	3	140	..	..	..	..	75	Yes	10	No	Yes
Uniontown .....	19,500	..	7	2	185	..	..	..	..	70-80	..	..	Yes	No
Warrens .....	14,000	3	8	3	200	..	..	..	..	..	..	..	..	..
West Berwick .....	18,000	20	..	..	36	..	..	..	..	..	..	..	..	..
Wilmerding .....	6,000	..	..	..	..	..	..	..	..	..	..	..	..	..
Rhode Island:														
Central Falls .....	23,708	1.9	16	6	..	..	..	..	..	1,000	Yes	\$150	No	No
Woonsocket .....	42,000	8.8	50	19	..	..	..	..	..	93	Yes	13½	No	No
South Carolina:														
Alken .....	4,500	4½	85	7	12	..	..	..	..	75-85	No	..	No	No
Charleston .....	60,000	4	..	4	2	..	..	..	..	75	In 1914	..	No	No
Darlington .....	5,000	4	..	..	..	..	..	..	..	..	..	..	..	..
South Dakota:														
Aberdeen .....	13,000	4	12	2	none	..	all	all	good	930-1,400	Yes	5	No	No
Lead .....	9,000	2	12	3	none	..	..	..	loss % less	90	Yes	..	No	No
Madison .....	4,500	2	1	3	54	..	..	..	reduced insurance	70	No	..	No	No
Watertown .....	9,000	2½	6	2	15	same	same	same	..	75-115	Yes	5-15	No	No
Tennessee:														
Chattanooga .....	75,000	7	73	12	15	80	80	80	..	90-110	Yes	\$10	Yes	No
Clarksville .....	12,000	12	3	2	71*	all	all	all	..	60-65	In 1915	..	No	No
Cleveland .....	8,500	3	3	2	16	..	..	..	good	50	No	..	No	No
Greenville .....	6,000	..	..	2	8	..	..	..	..	..	..	..	No	No
Humboldt .....	5,000	1	10	2	none	..	..	..	..	77.50-90	No	..	No	No
Jackson .....	20,000	4½	8	1	none	..	..	..	..	60-90	Yes	10	No	Yes
Johnson City .....	15,000	1	8	1	10	35	70	70	..	75	Yes	\$5	No	No
Knoxville .....	90,000	26	86	23	..	..	..	..	..	90	No	..	No	No
Nashville .....	117,057	18.2	94	34	10	all	all	all	..	..	..	..	..	..
Paris .....	5,000	1	1	4	10	..	..	..	..	..	..	..	..	..
Texas:														
Amarillo .....	19,000	8½	10	4	18	25*	25*	7*	better service	65-90	Yes	7	Yes	No
Austin .....	35,000	16.5	33	1	none	100	100	100	great improvement	72.50-80	No	..	No	No
Bonham .....	7,500	7	4	2	30*	30*	30*	30*	..	75	Yes	\$5	No	No
Brenham .....	5,000	1	2	3	50	100	100	100	..	..	..	..	No	No
Dallas .....	130,000	20	170	5	none	..	..	..	..	1,050	Yes	..	No	No
Denison .....	20,000	8	10	2	none	..	..	..	..	70-75	..	..	No	No
El Paso .....	61,302	9.1	63	17	45	all	all	all	..	85-95	Yes	13	No	No
Georgetown .....	4,000	..	..	14	..	..	..	..	..	..	..	..	No	No





TABLE No. 2—FIRE PREVENTION WORK.

City and State	Is fire prevention work organized?	What power has bureau to enforce orders?	Do regular firemen do inspecting?	How many inspectors in the bureau?	How often each year is each building inspected?	Has prevention bureau reduced fire losses?
<b>Alabama:</b>						
Brewton	No		No	None		
Gadsden	No		No	1	12	Yes.
Huntsville	Yes		Yes		24	
<b>Arizona:</b>						
Bisbee	No		Yes	All firemen		
Douglas			Yes		4	
Nogales	No		Yes, chief	None		
Phoenix	No	Power of arrest	Yes	6	2	Yes.
<b>Arkansas:</b>						
El Dorado	No					
Fort Smith			Yes		4	
Little Rock			Yes	Once	Once	Yes.
Prescott	Yes		Yes		4	Yes.
Russellville	No		No	None	None	No.
<b>California:</b>						
Alameda	No		Yes			
Berkeley	No		Yes			Yes.
Emeryville	No		Yes		3	Yes.
Modesto	No		Yes			
Monrovia	No		Chief only	2	Monthly	Yes.
Oakland	Yes	City Ordinance	Yes	28	2	Yes.
Palo Alto	Yes	City ordinance	Yes	3	Frequently	Yes.
Pasadena			Yes		3 or 4	
Petaluma			Yes			
Pomona	No		Yes			
Richmond	No	City Ordinance	Yes		Monthly	Yes.
San Leandro	No		No	None	Once	No.
Santa Ana	No		Yes		12	
Santa Barbara	No		No			
Santa Monica			Yes	2	6	Yes.
Stockton	No		Yes	All captains	.3 times	Yes.
<b>Colorado:</b>						
Boulder			Yes		8	
Colorado Springs	Yes	City Ordinance	Yes	2	Once	Yes.
Fort Collins	No	None	No	None	2	No.
Grand Junction	No		Yes		2	Yes.
Idaho Springs		Arrest	Yes	2	3	Yes.
Longmont	No		Yes	Firemen	Monthly	Yes.
Trinidad	Yes	Arrest, fine and imprisonment	Yes	6	Monthly	Yes.
<b>Connecticut:</b>						
Bridgeport	Yes	Legal	Yes	4	12	Yes.
Danbury	No		Yes		6	
Hartford	No	City Ordinance	Yes			Yes.
New Britain	No		Yes		4	
New Haven	Yes	City and State laws	Yes		Monthly	Yes.
Norwich	Yes		Yes		Several	Yes.
Torrington	Yes	Legal	Yes	2	1 or 2	Yes.
Waterbury	No		Captains cover districts			Yes.
<b>District of Columbia:</b>						
Washington	Yes	Law and regulations	Yes	5		Yes.
<b>Florida:</b>						
Lakeland	No	Left to chief	No	1	12	Yes.
Quincy	Yes	Ordinances	Yes	1	1	Yes.
St. Augustine	No		Yes			
St. Petersburg	No		Yes		6 to 12	Think so.
Sarasota	Yes	Arrest and fine	Yes	2	2	Yes.
West Tampa	No		Yes	None		
<b>Georgia:</b>						
Americus	Yes	City Ordinance	Yes	4	2	Yes.
Athens	No		Yes		4	Yes.
Atlanta	No			1		
Brunswick			Yes		Twice	
Carrollton	No		Chief		Weekly	
Moultrie			Yes		2	
Newman	No	Police	Yes	2	2 to 5	Yes.
Rome	Yes	Full power	Yes	3	12 to 20	Yes.
Valdosta	No		Yes			
<b>Idaho:</b>						
Boise	Yes	Legal	Yes	32	Weekly	Yes.
Pocatello	No		Yes		4	
<b>Illinois:</b>						
Aurora			Yes		2	
Belvidere	No		Yes	5	2 or 3	
Bloomington	Yes	State law	Yes	2		Yes.
Cairo	Yes	State and City laws	Yes	None	2	Yes.
Cartersville	No		No		2	Yes.
Champaign	Yes	City Ordinance	Yes		5 or more	Just started.
Charleston	No	State and City laws				Yes.
Chester	Yes	State laws		1		
Chicago	Yes	City ordinance	Yes	35	2	Yes.
Chicago Heights	No		Occasionally			
Downers Grove	No		Chief			
East Moline	No		No		Twice	
East St. Louis	No		Yes		Once	
Evanston	Yes	City Ordinance	Yes	All men	4	Yes.
Granite City	No		No	None	Once	No.
Jacksonville	Yes		Yes	2	2	
Joliet			Yes		Every 30 days	
Macomb	No		Yes		Once	
Murphysboro	No	Chief and firemen	Some		12	Yes.
Normal	No		Some			Fire loss has decreased.
Pana	No	Chief and firemen he deputizes	No		Once or more often	Yes.
Paris			Fire chief			
Paxton	No		No	None	4	
Pekin	No		Yes		Twice	Yes.

For footnotes, see page 464.



TABLE No. 2—FIRE PREVENTION WORK (Continued).

City and State	Is fire prevention work organized?	What power has bureau to enforce orders?	Do regular nremen do inspecting?	How many inspectors in the bureau?	How often each year is each building inspected?	Has prevention bureau reduced fire losses?
<b>Indiana:</b>						
Anderson	No	Chief and two paid men	Yes	3	2	No
Decatur	No	Fire Department inspecis	Yes	3	2	Yes
Elkhart	No	State Fire Marshal law	Chief only	Chief only	3	Yes
Frankfort	No	Chief	Chief only	Chief only	3	Yes
Garrett	No	Receive orders from Fire Marshal	Yes	4	4	Yes
Gary	Yes	Chief	Yes	2	4	Yes
Kendallville	No	Fire Dept.	Yes	2	4	Yes
Kokomo	No	State Fire Marshal laws	Yes	2	4	Yes
Lafayette	No	Yes	Yes	3 councilmen	4	Yes
La Porte	No	Yes	Yes	1	3	Yes
Lawrenceburg	No	Yes	Yes	1	4	Yes
Martinsville	No	Yes	Yes	11	Monthly	Yes
Plymouth	No	Police power by ordinance	Yes	2	2	Yes
Ricmond	No	State law	Volunteers	All firemen	Varies	Yes
Shelbyville	No	Yes	Yes	3	2	Yes
Terre Haute	Yes	Ordinance	Yes	3	2	Yes
Vincennes	Yes	Yes	Yes	3	2	Yes
Wabash	No	Yes	Yes	3	2	Yes
Warsaw	Yes	State law	Volunteers	All firemen	Varies	Yes
Washington	No	Yes	Yes	3	2	Yes
Whiting	Yes	Ordinance	Yes	3	2	Yes
<b>Iowa:</b>						
Burlington	Yes	City and State laws	Yes	6	Continuously	Yes
Cedar Rapids	Yes	City Ordinance	Yes	2	3 or 4	Yes
Council Bluffs	No	Yes	Yes	2	2	Yes
Davenport	Yes	Yes	Yes	2	2	Yes
Grinnell	No	None	None	3	4	Yes
Keokuk	No	None	None	1	24	Think so.
Marion	No	Only chief	Only chief	1	1	Yes
Mason City	No	Ordinance	Yes	1	4	Yes
Muscataine	No	Yes	Yes	8	12	Yes
Oelwein	Yes	Yes	Yes	1	2	Yes
Sioux City	Yes	Yes	Yes	1	2	Yes
Washington	Yes	Ordinance	Yes	1	2	Yes
Waterloo	Yes	Ordinance	Yes	1	2	Yes
<b>Kansas:</b>						
Cherryvale	Yes	City Ordinance	Yes	6	2	Yes
Fredonia	Yes	Yes	Yes	6	2	Yes
Independence	No	Yes	Yes	2	8	Yes
Kansas City	No	Arrest	Chief	2	Weekly	Yes
Mulberry	No	Yes	Chief	1	2	Yes
Newton	No	Yes	Yes	2	2-8	Yes
Olathe	Yes	Yes	Yes	2	12	Yes
Parsons	No	Chief	Chief	7	4	Yes
Topeka	Yes	City and State laws	Yes	7	12	Yes
<b>Kentucky:</b>						
Cynthiana	No	Chief and State Marshal make inspections	Chief	1	8	Yes
Harrodsburg	No	City and State laws	Yes	3	3-5	Yes
Henderson	Yes	Yes	Yes	3	2	Yes
Lexington	No	Yes	Yes	3	2-3	Yes
Russellville	No	Yes	Yes	3	2-3	Yes
<b>Louisiana:</b>						
Jennings	No	Chief and State Marshal make inspections	Chief	14	12	Yes
New Orleans	Yes	City ordinance	Yes	1	12	Yes
Winnfield	Yes	Yes	Yes	5	12	Yes
<b>Maine:</b>						
Augusta	No	Chief has power	No	1	12	Yes
Bideford	No	Inspector	Inspector	1	2	Think so.
Calais	Yes	Yes	Yes	2	2	Yes
Camden	No	Yes	Yes	3	2	Yes
Dexter	No	State laws	Chief	1	As necessary	Have few fires.
Norway	Yes	Yes	Yes	1	2	Yes
Portland	No	Yes	Yes	2	2	Yes
Rumford	Yes	No	No	2	2	Yes
<b>Maryland:</b>						
Baltimore	Yes	Fire prevention law	Yes	1	4	Yes
<b>Massachusetts:</b>						
Beverly	No	Yes	Yes	4	Weekly	Yes
Brockton	No	Captains	Captains	4	Several	Yes
Cambridge	No	Yes	Yes	None	12	Yes
Fitchburg	No	Yes	Yes	4	Weekly	Yes
Frammingham	No	Yes	Yes	4	4 or more	Yes
Gardner	No	Chief	Chief	12	12	Yes
Gloucester	No	Yes	Yes	24	24	Yes
Greenwich	No	Yes	Yes	1	3 or 4	Yes
Haverhill	No	Yes	Yes	12	12	Yes
Hingham	No	Yes	Yes	2	2	Yes
Lawrence	Yes	Ordinances	Yes	10	4	No
Lowell	No	Yes	Yes	24	24	Yes
Lynn	No	Legal	Yes	12	12	Yes
Malden	Yes	Laws and ordinances	Yes	4	4	Very much.
New Bedford	Yes	Yes	Yes	4	4	Yes
North Brookfield	No	No	None	3	4 or 6	Think so.
Quincy	Commission	Legal power	Yes	3	12	Yes
Reading	Commission	Under Metropolitan District	Yes	12	12	Yes
Revere	Yes	City Ordinance	Yes	12	25	Yes
Salem	Yes	Legal	Yes	12	2	Apparently.
Somerville	Yes	Legal	Yes	1	1	Yes
Walpole	No	Yes	Yes	4	12	Yes
Waltham	No	Under Metropolitan District	Yes	4	2-4-6	Yes
Watertown	Yes	By law	Yes	7	12	Yes
Wellesley	Yes	Yes	Yes	7	12	Yes
Westford	No	Legal	Officers	53	24	Yes
Worcester	Yes	Legal	Officers	53	24	Yes

For footnotes, see page 464.

TABLE No. 2—FIRE PREVENTION WORK (Continued).

City and State	Is fire prevention work organized?	What power has bureau to enforce orders?	Do regular firemen do inspecting?	How many inspectors in the bureau?	How often each year is each building inspected?	Has prevention bureau reduced fire losses?
<b>Michigan:</b>						
Albion	No		Yes.		2	Yes.
Alpena			Yes.		12	Yes.
Battle Creek	No		Yes.		4	Yes.
Cadillac			Yes.	1	3	Yes.
Detroit	Yes	City ordinance	Yes.	3	4	Some
East Jordan			Yes.		2	Yes.
Hillsdale		State and city laws	Yes.	3	3	Yes.
Lapeer	No	State law	Yes.	1	4	
Manistee			Yes.		6	
Wyandotte	Yes.	Full	Chief	1	3	
<b>Minnesota:</b>						
Albert Lea	No				12	
Anoka	Yes.		Yes.	1	2	Yes.
Chisholm	Yes.	Full	Yes.		4	Yes.
Detroit	No				1	
Duluth	No		Yes.		2	
E. Grand Forks	No				12	
Fairmont					2	Yes.
Minneapolis	Yes.	Legal	Yes.	4	24	Yes.
New Ulm	No		Yes.	2	2	Yes.
Pipestone	No		Yes.		2	
St. Cloud			Yes.		4	Yes.
St. Paul	Yes.	Arrest	Yes.	2	4	Yes.
Stillwater	Yes.	City and State laws	Yes.	2	1	Think so.
Thief River Falls			No	1	1	Yes.
Virginia	Yes.	Full power	Yes.	2	4	Yes.
Willmar					3	
Winona	Yes.	City Ordinance	Yes.	10	12	Yes.
<b>Mississippi:</b>						
Jackson			Yes.	4	12	Yes.
Vicksburg	Yes.	Full power	Yes.	2	4	Yes.
<b>Missouri:</b>						
Cameron	No				2	Think so.
Carthage	No		Partially		1	
Hannibal	No		Yes.		2	Yes.
Kansas City	Yes.	Arrest	Yes.	4	8	No.
Maryville	No		Yes.		2	
Moberly	No		No	None	1	No.
St. Charles	No		Chief		1	
St. Louis	No	None	Yes.	Each Co.	2	
Springfield	No		Yes.		12	Yes.
Washington	No		No	No		
Webster Groves	Yes.	City Ordinance	Yes.	2	2	Yes.
<b>Nebraska:</b>						
Nebraska City	No		Yes.	3	2	Yes.
Norfolk	Some	Full	Yes.		2	Don't know.
<b>Nevada:</b>						
Reno	No		Yes.		2	Yes.
<b>New Hampshire:</b>						
Laconia	Yes.	Full power	Yes.	5	3	Yes.
Nashua		City Ordinance	Yes.		2	Yes.
<b>New Jersey:</b>						
Glen Ridge	Yes.	By insurance companies only	No	Chief	2	Yes.
Hackensack	Yes.		Yes.	Chief		Yes.
Haddonfield	Yes.	Stringent building regulations	Yes.	1	1	Yes.
Irvington	Yes.	System just started				
Jersey City	No		Yes.		12	
Lambertville	Yes.	Full power	Yes.	11	1	Yes.
Plainfield	No		Yes.		No reg. time	
Roosevelt	No		Yes.		1	
<b>New Mexico:</b>						
Raton	No	City Ordinances	Yes.	1	4	Yes.
Roswell	Yes.	Ordinance	Yes.	2	1	Yes.
<b>New York:</b>						
Albany	No	Ordinance	Each company covers own district		2	Yes.
Auburn	No		Yes.		6	
Batavia					1	
Binghamton	Yes.	Fire and building code	Yes.	7		Yes.
Brockport		Chief and assistants make semi-annual inspections				
Canastota	Yes.	Full	Yes.	9	3 or 4	Yes.
Cohoes	No		Yes.		3 or more	Yes.
Corning		Ordinance	Chief		2-4	Yes.
Freeport	No		Chief			Yes.
Fulton	Yes.	Complain to police	Yes.		4 or more	Yes.
Gloversville	No		Yes.		4	
Jamestown	No		Yes.		2	
Johnson City	Yes.	Ordinance	Yes.	30		Yes.
Liberty		Warden's Orders backed by village	No	9	No regular time	Yes
Mamaroneck	No		Yes.		2	
Mechanicville	No	Ordinance	No	None		
New Rochelle		Full power	Chief	1	2	Yes.
New York	Yes.	State and City laws	Yes.	140	12	Yes.
Patchogue	No		Chief		1	Yes.
Plattsburg	No		Yes.		4	Yes.
Rome		City charter	Yes.		4	Yes.
Scotia	Yes	Full	Yes.	5	2	Yes.
Silver Creek	No		No	1	1	Yes.
Syracuse	No		Yes.	20	2	Yes.
Utica	No		Yes.		4	Yes.
Warsaw					1	
Waverly	No		Yes.	3	2	
Westfield	No		No	None	None	No.
White Plains			Yes.		12	
Yonkers		Legal	Yes.	None	2	Some.

For footnotes, see page 464.



TABLE No. 2—FIRE PREVENTION WORK (Continued).

City and State	Is fire prevention work organized?	What power has bureau to enforce orders?	Do regular firemen do inspecting?	How many inspectors in the bureau?	How often each year is each building inspected?	Has prevention bureau reduced fire losses?
<b>North Carolina:</b>						
Asheville	Yes	Arrest and condemnation	Yes	3	4	Yes
Durham	Yes	State insurance commission	Yes	2	2	Yes
Kinston	Yes	State laws	Yes	2	4	Yes
Raleigh	Yes	State laws	Yes	5	12	Yes
<b>North Dakota:</b>						
Carrington	No		Yes		1	Probably.
Jamestown	Yes		No		1	Yes.
Valley City			Yes	25	4	Fewer alarms.
<b>Ohio:</b>						
Akron	Yes	Power to arrest	Yes	11		Yes.
Alliance	No		Yes		4	Yes.
Bellefontaine	Yes		Yes		2	Yes.
Bryan	Yes	Full inspection is by State	Yes	2	3	Yes.
Carrollton		Full legal power.				
Cleveland	Yes	Fire Marshal	Yes	15	No definite	Excellent work
Columbus	Yes	City and State law	Yes	4	52	Yes.
Conneaut	Yes	Ordinance	Yes	5	12	Yes.
Crestline	No		Chief	1	12	Yes.
E. Cleveland	Yes	City Ordinance	Yes	3	12	About 20 p. c.
E. Palestine	No		No	2	4	
Elyria	No		Yes		4	Yes.
Findlay	No		Yes		2	No.
Kenton	Yes		No	2	2	Yes.
Lakewood	Yes	City Ordinance	Yes	22	12	Yes.
Lima	No		Yes		2	Yes.
Lorain	No		Yes		2	
Middletown	Yes		Yes	2	3	Yes.
Mt. Vernon	No		Yes	1	12	Yes.
New Philadelphia	No		Yes		3-4	Yes.
Portsmouth	Yes	City Council	Yes	3	4	Yes.
Springfield	Yes	State and City laws	Yes	2	6	
Toledo	No		Yes		6	
Warren	No		Yes	4	6	Yes.
Youngstown	Yes	State law	Yes	3	12	Yes.
<b>Oklahoma:</b>						
Ada		Chief does all inspection work.			4	Yes.
Bartlesville	No				12	
Chickasha	Yes	City Ordinance	Yes	4	2 to 104	Yes.
Sapulpa	No		Yes		4	
<b>Oregon:</b>						
Astoria	Yes	City Ordinance	Yes		3 or 4	Think so.
Baker	No	Ordinances			12	Yes
Corvallis					6	
<b>Pennsylvania:</b>						
Altoona	No	Arrest and fine	Yes	18	2-4	Yes.
Beaver Falls	No		Yes		6	
Bellwood	No		No	1	When reported	Yes.
Connellsville	Yes	Same power as Mayor	Yes	6	12	Yes.
Duquesne	No		Yes		2	
Easton	No		Yes	2	12	Yes.
Franklin	Yes	As fire marshal	Yes		12	Yes.
Jeannette	Yes	City Ordinance	Yes	4	12	Yes.
Jersey Shore	No	State Fire Marshal	No	None	Several	Yes.
Latrobe	No		Yes	1	1	
Oil City		City and State laws	Chief			Yes.
Philadelphia		Fire Marshal's Div., Bureau of Police		24		
Pittsburgh	Yes	Bldg. Insp. Dept.	Yes	1	2	Yes
Reading	Yes	Chief and State Fire Marshal	No	None	When neces'y.	Yes.
Uniontown	No		Yes		2	
Wilmerding	Yes		No			Yes.
<b>Rhode Island:</b>						
Woonsocket			Yes		7	
<b>South Carolina:</b>						
Aiken				1	1-4	
Charleston	Yes	City and State laws	Yes	6	1-12	Yes.
Darlington	No		Yes	All firemen	1-4	Yes.
<b>South Dakota:</b>						
Aberdeen			Yes		3	
Lead	No		Yes	11	1	Some.
Madison	Yes		No	4	2	Yes.
Watertown	Yes	As fire warden	Yes	1	2	Yes.
<b>Tennessee:</b>						
Chattanooga	Yes		Yes			
Clarksville	No		Yes	2	4	
Cleveland		State Fire Marshal and Chief work together				Considerably.
Humboldt	No		No	No	1	Yes.
Jackson	Yes	Arrest and prosecute	Yes	10	12	Yes.
Johnson City	Yes	Police power	Yes	1	12	Yes.
Knoxville			Yes	1		Yes.
Nashville	No		Yes		2	Yes.
<b>Texas:</b>						
Amarillo	No		Yes	1	12	Yes
Austin	No		Yes	1	2	Yes.
Dallas		Fire Marshal	Yes	2		Yes.
El Paso	No	As fire marshal	Yes		12	Yes
Gainesville	No		No			
Georgetown	No		Yes	4	12	
Houston Heights	Yes	Ordinance	Yes	10	12	Yes.
New Braunfels	No		Chief and Marshal			
Palestine	Yes	Legal	No	1	4	Yes.
San Marcos		City Fire Marshal has power	Two	2	12	Yes.
Seguin	Yes		One		12	
Victoria	Yes	State and City laws	Yes	7	2	

City and State	Is fire prevention work organized?	What power has bureau to enforce orders?	Do regular firemen do inspecting?	How many inspectors in the bureau?	How often each year is each building inspected?	Has prevention bureau reduced fire losses?
<b>Utah:</b>						
Brigham	No		Yes	4	2	Yes.
Logan			Yes		8	
Ogden	Yes		Yes	1	12	Yes.
Salt Lake City	No		Yes	1		
<b>Vermont:</b>						
St. Johnsbury	Yes	None	Yes	7	2	Think so.
<b>Virginia:</b>						
Bedford	Yes	Have power but fail to use it.	No	3	4	Don't know.
Harrisonburg	No		None	None		
Newport News	No		Yes	2	5-6	Yes.
Roanoke	Yes	State and City laws	No	1		Yes.
Staunton	Yes	Fine	Yes	2	4	Yes.
<b>Washington:</b>						
Bellingham	No		Yes		12	Yes.
Olympia	No				4	
Port Townsend	Yes		Yes	3	2	
Puyallup	No		Yes	3	2	Yes
Seattle	Yes	Warrants and arrests.	Yes	8	2	Don't know.
Walla Walla	No		Yes		12	Yes.
<b>West Virginia:</b>						
Elkins	No		Chief	1	4	Yes.
Fairmont	No		Yes		2	
Keyser	Yes	Full			1	
Martinsburg	Yes		Yes	5	2-4	Yes.
Wheeling	Yes	City Ordinance	Yes	9	3	Yes.
<b>Wisconsin:</b>						
Antigo	Yes	City ordinance	Yes	2	4	Yes
Appleton	Yes	Full	Yes	2	4	Yes.
Ashland	No		Yes		4	
Berlin		State and City laws	Yes	1	4	Yes.
Fond du Lac			Yes	All officers	24	Yes.
Ft. Atkinson	No		No	1	4	Yes.
Grand Rapids			Yes		4-2	
Hudson	No				4	
Jefferson	No				4	Yes.
La Crosse	No		Yes		2-4	Yes.
Manitowoc			Yes	3	4	Yes.
Merrill	State		Yes		4	Yes.
Milwaukee	Yes	Building Inspector or City Attorney has power.	Yes	11	2-4	Yes.
Oshkosh	Yes	State law	Yes		4	Yes.
Portage	Yes	State law	Chief	6	6	Yes.
Rhineland		State law	Yes		2 or 4	Yes
Shawana	No		No		6	
Stoughton			Yes		2-4	
Superior	Yes	City Ordinance	Yes	3		Yes.
Waupum			Chief		4-6	
West Bend	No		Yes	3	4	
<b>Canada:</b>						
Westmount		Regular inspection	Yes		2	

<sup>1</sup> Also when Chief thinks it is necessary or advisable; <sup>2</sup> buildings in fire limits, once each week; <sup>3</sup> oftener when necessary; <sup>4</sup> often as possible; <sup>5</sup> reduction of 1912-1916 over 1907-1911 of \$7,909,582; <sup>6</sup> have a fire prevention commission; <sup>7</sup> from \$6,500 to \$270; <sup>8</sup> 12 times a year in fire district.

### FIRE DEPARTMENT NOTES.

Chief Hopkins, of Charleston, Ill., writes that he would urge the importance of universal adoption of the standard coupling so that any city when called upon by neighboring cities would be able to render some assistance.

Chief Geo. L. Koerner of Portsmouth, Ohio, states that there is an organization of the towns in that vicinity, members of which furnish assistance to each other and all the apparatus in which towns is provided with uniform couplings.

In Normal, Ill., population 5,000, the force is all volunteer except two officers, a chief and assistant chief, who are hired as police officers but have charge of the fire department.

Chief J. R. Gibbs, of Winnfield, La., writes suggesting the desirability that dealers in motor apparatus should extend more credit to small towns in order that such towns might obtain fire apparatus. In that state bond issues cannot be voted legally for purchasing fire apparatus, and the dealers require a cash payment of at least \$3,000 to \$5,000, which sum it is difficult for small towns to raise at one time for this purpose.

In Laconia, N. H., the firemen are instructed in the location of boxes and hydrants until they are able to answer such questions as the following: "Where is box No. 25 located and what is the size of the water main in that street? How many feet of hose would be required

to reach a certain factory on such a street from the nearest hydrant? Where is the sprinkler shut off in this factory? Where is the valve for shutting off this water main?" Chief A. W. Spring says that the firemen can answer all such questions satisfactorily.

In Martinsburg, W. Va., population 12,000, chief Martin Quinn states that all of the new men are required to visit and inspect buildings to learn their location and conditions, and to learn the location of every business house, church, school, factory, fire hydrant and street in the city.

Oberlin, Ohio, population 5,000. Chief C. R. Graham reports that there are plumbers, carpenters, electricians, gas inspectors and draymen in the department, which is entirely volunteer, and these keep up the inspection of the properties in the city and report to the state inspectors.

An explanation given by Charles S. Hafer, chief of Little Rock, Ark., concerning the miles run by their motor apparatus per gallon of gasoline may apply to other cities as well. Chief Hafer says that their department was completely motorized this year, some of the pieces of apparatus having been only a few months in service, and considerable gasoline has been consumed in breaking in the men in handling them, driving them around when not in actual service, etc., as a result of which figures of mileage and gasoline consumed would not be fair to the machine.



# Municipal Journal

Published Weekly at  
243 West 39th Street  
by  
Municipal Journal and Engineer, Inc.

S. W. HUME, President  
J. T. MORRIS, Treas. and Mgr. A. PRESCOTT FOLWELL, Sec'y.

A. PRESCOTT FOLWELL, Editor  
W. A. HARDENBERGH and SIMON BARR, Assistant Editors  
CHARLES CARROLL BROWN, Western Editorial Representative

Telephone, 9591 Bryant, New York  
Western Office, Monadnock Block, Chicago

## Subscription Rates.

United States and possessions, Mexico and Cuba.....\$3.00 per year  
All other countries..... 4.00 per year  
Entered as second-class matter, January 3, 1906, at the Post Office at  
New York, N. Y., under the Act of Congress of March 3, 1879.

## Change of Address.

Subscribers are requested to notify us of changes of address, giving both old and new addresses.

## Contributed Articles and Reports.

*Contributions suitable for this paper, either in the form of special articles or as letters discussing municipal matters, are invited and paid for.*

*City officials and civic organizations are particularly requested to send Municipal Journal regularly their annual and special reports.*

## Information Bureau.

*Municipal Journal's Information Bureau, developed by twenty-one years' research and practical experience in its special field, is at the command of our subscribers at all times and without charge.*

## FIRE DEPARTMENT TABLES IN THIS ISSUE.

During the past month the Municipal Journal has obtained, through the kindness of the chiefs of about 600 fire departments, a great amount of information concerning the equipment of their departments as to apparatus, the fire alarm system in service, the amount and nature of fire prevention work being done, the fire fighting force and the matter of pensions and benefits provided for such force. The information so collected is so voluminous that it seems impracticable to give it all in one issue and we are accordingly presenting in this number only that referring to the composition, salary, etc. of the force of the department, and the fire prevention work being done. The other information will be given in later issues of Municipal Journal.

Together with these data on fire prevention, we are also publishing in this issue two papers dealing with the same subject, one describing the work of the Fire Marshal's Department of Ohio (one of the oldest departments of this kind in the country and also one of the most effective), and another describing the work of the Fire Prevention Bureau of New York City. There are given also descriptions of the work being done by most of the state fire marshal departments of the country, compiled from information furnished us directly by the several fire marshals.

These articles and data give a very complete survey of the fire prevention work being done by cities and states throughout the country. This seems especially appropriate at this time, when conservation of all the country's resources, of which conservation fire prevention is a most important factor, is so vitally necessary to our prosecution of the war. Several of the fire marshals, especially the Ohio State Marshal, have emphasized the

special importance and difficulty of fire prevention work at this time owing to the addition to the ordinary dangers of that due to the activities of agents and sympathizers of Germany, who have been and probably will be increasingly active in the destruction of all industries connected with the furnishing of war munitions and of food.

## FIRE PREVENTION AND PATRIOTISM.

The appeal of patriotism is being urged upon citizens in every walk of life and in connection with almost every kind of activity and function. The kitchen, the store and factory, public work and private pleasure, all are embraced in the efforts which we are urged to make to "do our bit" in helping the country at this critical period.

One of the most important of these, and yet one which has not received from the press so great a degree of attention as the others, is that of fire prevention. It is of no avail that the farmers double their crops if the surplus is to be destroyed in transit or in warehouses. Neither our own army nor that of our allies can profit by the enormous amount of munitions being turned out if these are to be destroyed before they leave this country; and the capital and labor invested in the production of such munitions is worse than wasted if such factories are to be destroyed by enemies in this country and the laborers therein rendered temporarily inactive.

A large share in preventing such destruction is necessarily borne by the secret service department, but this department should be cooperated with to the fullest extent by all public officials who can effectively render patriotic service in this way. These include the state and city fire marshals and bureaus of fire prevention, and also the police force of the city, which can and should render valuable aid in guarding property against incendiarism and in apprehending the offenders. It therefore seems most desirable that the fire departments seek the most intimate relationship and cooperation with the police departments.

In addition to the dangers of incendiarism, the fact that new buildings are being used for warehouses, some of which buildings were perhaps not constructed for this purpose, and that buildings that were so constructed are being used to the limit of their capacity, makes more necessary than ever the enforcement by fire prevention bureaus of regulations calculated to eliminate such dangers as spontaneous combustion or accidental fires, which dangers have always existed but are now more threatening than ever owing to the conditions referred to.

Fire prevention work by city department officials is now one of the most effective directions in which they can exert their patriotism for the benefit of the country.

## THE TIME TO PUT OUT A FIRE.

If there were a smallpox epidemic in your city and the health department were to buy a fine new automobile hearse with silver and white silk fittings and were to invite the citizens to inspect it, would you be proud of the progressiveness of your city and of the hearse?

But there are frequent fires in your city and when your department buys a new blazing red triple combination with nickel and brass fittings the delighted citizens drop in at the fire house and pat the chief on the back.

There is no difference between these two cases—only that in matters of public health we have recognized that the first duty of the city is to prevent disease, but in the matter of public safety we have not realized that the first duty of the city is to prevent fires, accidents and crimes. In the field of fire protection we are still where we were about a hundred years ago in public health—when people believed that smallpox was an act of God. When we

have a typhoid epidemic now we do not hold public prayer meetings—we boil the water, pasteurize the milk and isolate the patients. Not only that—we want to know why the water was allowed to become polluted and why the food regulations were not enforced. We have become educated to demand prevention. When we have a big fire we should demand to know why the building was of tinder construction, why there is no stringent building law being vigorously enforced, why the citizens and children have not been educated out of carelessness and why gross over-insurance is allowed to encourage arson.

The average annual fire loss during the past ten years in this country and Canada has been \$230,000,000. Is it because our firemen are incompetent, untrained or cowardly? There is no more splendid body of fire-fighters in the world than those of American cities. The truth is that fire-fighting has reached the limit of its effectiveness. We are fighting fire as well as we can. Let us take the burden off the firemen—it is now up to the city council and the state legislature. The only way to reduce fire losses is through prevention.

Let us recognize that every piece of fire apparatus is a splendid confession of civic crime and every foot of hose an admission of failure. Some are necessary, but it is in our power to need them less. We cannot legislate and educate fires out of existence, but we can perhaps reduce them by half.

The time to put out a fire is before it starts.

## STATE FIRE MARSHAL LAWS.

### Synopsis of That of Pennsylvania, Which Contains Most of the Provisions Common to a Majority of the State Laws.

The laws of most of the states creating and defining the powers of fire marshal are similar in many respects and, in fact, it is apparent that certain paragraphs in many of the later laws have been taken bodily from the earlier ones. This is of course true of other classes of statutes and it is perfectly proper that provisions that have proved satisfactory in one state should be adopted in others. The Pennsylvania act dealing with the department of state fire marshal seems to contain almost all of the provisions to be found in most of the other state laws, and an extensive abstract of that law is given herewith:

The act creating the position of state fire marshal of Pennsylvania was passed by the legislature in 1911 and supplemented in 1913. This act provides for the appointment by the governor of a state fire marshal for a term of four years at a salary of \$5,000 and expenses. He is required to give a bond of \$10,000 for the faithful performance of his duties. The marshal appoints a chief assistant fire marshal at \$4,000 and expenses, and a first and second deputy, each at \$3,000 and expenses. The marshal may also appoint as many stenographers at \$1,200 each as may be necessary, and clerks and assistants at \$3 a day. In addition to these, the chiefs of all fire departments throughout the state, and, in any incorporated district where there is no fire department, the burgess or president of the board of supervisors, are by virtue of their office assistants to the marshal, and subject to the duties and obligations of the act and the directions of the marshal. The marshal may also appoint individual citizens as assistants. The assistants, who do not receive a salary, receive fifty cents for each separate fire reported to the marshal, fifteen cents for each mile traveled to the fire, and, at the discretion of the marshal,

not to exceed \$3 a day for the time spent in the investigation.

The assistants are required to investigate the cause, origin and circumstances of every fire in the state and so far as possible determine whether it was incendiary, the investigation to be begun immediately after the fire by the assistant in whose territory it occurred. If there is suspicion of incendiarism, the state fire marshal is to be notified immediately. In any case, within ten days after its occurrence each fire shall be reported to the marshal on a form prescribed by him.

Also, every fire insurance association doing business in the state must report annually to the marshal, on blanks furnished by him, the total amount of policies that they have out, and send to him the date and location of each fire in property insured by it, the amount for which it had insured the property, probable loss and supposed cause of the fire; such reports to be sent by registered mail on or before the 10th of each month, to cover all fires of the previous month. If incendiary origin is suspected, information shall be sent at once. Any company violating these provisions is liable to a penalty of \$250, and forfeiture of its license if it is a foreign company.

If the marshal or his deputies or assistants are requested, or think it desirable to do so, they are directed to inspect buildings and premises within their jurisdiction, and if they are found to be for any reason especially liable to fire and endangering other property, an order shall be given directing them to be removed or repaired; and if any combustible or explosive material or inflammable conditions are found, they must be remedied. Owners receiving such orders may appeal from the marshal to the court of common pleas of the county. Any owner failing to comply with such an order and who makes no appeal within five days is liable to a penalty of \$25 for each day's neglect after the twentieth day; which penalty may be recovered as a debt collectable by law in any court of jurisdiction.

The marshal, his deputies and assistants have power to summon witnesses and require them to produce books and other documents, and to administer oaths. No such witness can be excused from testifying on the ground that his evidence would tend to convict him of a crime or subject him to a penalty or forfeiture, but he cannot be prosecuted for any matter concerning which he has testified. If the marshal or his assistants believe that a crime has been committed, the evidence is to be turned over to the district attorney, who institutes criminal proceedings. Any witness who refuses to obey the summons of the marshal or to produce documents can be punished for contempt of court by application to any court within whose jurisdiction such contempt took place.

The state fire marshal is required to keep on file all reports and records of all kinds relating to his office, and these shall be made public, except that testimony of witnesses may be withheld at his discretion. He is to prepare blank forms for furnishing information; also prepare, in consultation with the superintendent of public instruction, text books for use in public and private schools with regard to the dangers of fire and the prevention of fire waste; and the superintendent of instruction and principals of the schools shall see that such books are used systematically for giving such instruction. The schools are also required to hold fire drills at least once a month.

The marshal is required to make an annual report outlining the work done by his office during the previous year and making such recommendations as he thinks proper.



## The WEEK'S NEWS

**Embargo Holds Up Road Work—State Highway Developments in Georgia and Oregon—Reactionary Health Legislation in Ohio—New York City Sells Surplus of New Water Supply—Indiana Public Service Commission's Year's Work—Serious Fires in Charleston, W. Va.; Paterson, N. J.; Atlantic City, N. J.; Baltimore, Md.; Tulsa, Okla.; Cleveland, O.; Philadelphia, Pa., and Boston, Mass.—Two-Platoon System in Buffalo and Tacoma—San Francisco's Lodging House Fire Traps—New Motor Apparatus in Newark, Syracuse, Terre Haute and Natchez.**

### ROADS AND PAVEMENTS

#### Road Work Held Up by Priority Ruling.

Washington, D. C.—The Council of National Defense, through the Priority Board, has ordered that the following classes of materials may not be shipped in open-top freight cars, except flat cars, after Nov. 1: "1. Materials and supplies, other than coal, for the construction, maintenance, or repair of public or private highways, roadways, streets or sidewalks. 2. Materials and supplies other than coal, for the construction, maintenance, or repair of theatres or other buildings or structures to be used for amusement purposes. 3. Materials and supplies, other than coal, for the manufacture of pleasure vehicles, or furniture or musical instruments. 4. Passenger vehicles, furniture and musical instruments, which articles the undersigned finds are not essential to the national defense security." The order will affect practically all road work being completed at the present time, as contractors have not been prepared for such a move. Sand, slag, gravel and stone will be impossible to obtain over the railroads, and only some brick, cement and asphalt will be obtainable when shipped on gondola cars. No hearings were held before the order was issued and highway engineers and contractors are complaining vigorously of this treatment. Action was taken because of acute coal shortage in many parts of the country and there is no indication as to when the order will be lifted.

#### Stricter Control of Street Openings.

Montclair, N. J.—Determined that the permanently paved streets in the town shall not be damaged by being disturbed by contractors and public utility corporations, the Montclair board of commissioners has voted to increase the deposit required for a permit to open streets, which is now \$10, to at least \$50. In addition a written guarantee will be required that the street shall be properly relaid. The bond required at present from contractors will be continued. The town has been obliged recently to do considerable work on trenches in streets improperly filled in by contractors. In its road improvement program the town is endeavoring by every means possible to see that water, sewer and gas connections are made before permanent pavements are laid. Commissioner John Picken suggested that the commission go further and demand more durable pipe in street connections. In his opinion the life of the galvanized iron pipe used at present is not more than ten years, while the pavement to be put down will exceed the life of the pipe by five or more years.

#### Georgia Road Projects Approved.

Atlanta, Ga.—At a meeting of the state highway commission judge T. E. Patterson, chairman, made the announcement that all the 1917 Georgia projects have been approved by the United States government and the Georgia apportionment of money out of the federal road aid fund is now available. Of the six projects approved by the federal department as this year's program, the most important project is that contemplating a first-class highway between Atlanta and Macon. Work on all the projects, however, will be started and carried on at the same time. For some time there was a question of whether the government would compute the value of the convict labor which the state will use on the road on a per diem basis for each man used, or whether it would be on a basis of maintenance cost. Both of these propositions, however,

have been rejected, and estimates will be made of the total cost for each project and on that basis the government will pay one-half the total cost, the other half to be borne by the counties through which the improved roads run. On this basis it will be immaterial to the federal government whether convict or free labor is used under contract. The counties, however, will undoubtedly employ convict labor, as is done on other road work where the state convicts are apportioned to the counties. Judge Patterson, who is a member of the state prison commission as well as chairman of the state highway commission, believes that the working of convicts on the public roads "is splendid for the convicts themselves from a humanitarian and reformatory standpoint," but at the same time he believes there are material drawbacks to the operation of convict labor under the system obtaining in Georgia. Judge Patterson held then that there is nothing so beneficial to the character building as working a person close to the soil, "and in a kind of work in which he feels that he is getting some benefits from his own efforts." This class of work, as the judge has described it, is road work. Judge Patterson holds, however, that the state and not the counties, should absolutely control the convicts, and along that line he says: "One serious drawback we have in working convicts on the public roads is the large number of escapes we have. We think this is more than offset by the good accomplished, yet I feel if the state and not the counties had charge of the convicts, and we worked them in larger squads, greater care could be observed in preventing escapes and very often more human and sanitary methods employed in their work. I would advise that the state maintain control and authority over the convicts, as well as the responsibility of their maintenance and work, so that larger forces can be maintained, giving thereby greater efficiency and a higher class of work with less loss of money, time and labor."

#### Merit Promotion and Economy in Highway Department.

Salem, Ore.—With the view of making promotions on merit, state highway engineer Nunn has written to all the employees of the highway department asking that they send a statement to him giving their experience for the past five years, or since beginning work for the commission. "This is to be used in connection with our personal record of employees and is referred to whenever new positions are to be filled, with the idea in mind of picking those of our older employees for the better positions as they develop, if we can find men on our work who are fitted," reads the letter in part. The engineer has issued circular letters to the employee of the highway department, urging that overtime be a owed only whenever it is absolutely necessary and also the cost of operating automobiles in connection with their work be reduced to a minimum.

#### Improving Private Ways.

Boston, Mass.—The health department is maintaining the improvement of private ways, at the expense of owners of property abutting on these ways, by resurfacing and draining, repairing or replacing common drains and reconstructing steps leading to such passageways. Many of these private ways are in the rear of apartment dwellings. To secure this action various means are resorted to. The one usually adopted is to invite all the known abutting owners to attend a meeting at the office of the health commissioners, when the needs are explained and plans for

remedying the defects decided on. A committee is chosen by the owners to ascertain what the work will cost; this committee reports at an adjourned meeting, and the cost is usually apportioned according to the frontage on the alley, or as the owners decide. A statement is then drawn up showing the cost and each owner's apportionment. A treasurer is appointed to hold the money; and, when this is all in his hands, orders are given by him to do the work. One of the police officers detailed for service in the health department is assigned to confer with all owners, explain the plan and urge them to pay their share of the cost of the proposed work. This consumes considerable time, for it is necessary to find the real owners; and there are some who object for one reason or another. It is necessary that all join; and the department has no means of compelling co-operation except by an appeal to the criminal courts. Notwithstanding these handicaps, much work was done during the past summer.

---

## SEWERAGE AND SANITATION

---

### City to Pasteurize Whole Milk Supply.

Tacoma, Wash.—The first of the year will see Tacoma's four milk pasteurization depots in complete operation, according to Dr. R. A. Button, milk and meat inspector of the city health and sanitation department. The depots are in the plants of the Tacoma dairy, Royal dairy, MacKinnon Brothers and the Olympic Ice Cream Company. "Thirty-eight hundred gallons of milk come into Tacoma daily," said Dr. Button, "and 2,000 are now pasteurized. We hope to handle the entire amount by the first of the year. This will place the milk of Tacoma at the hands of the inspectors so that we will be able to keep a much better check on it." Dr. Button says that a check is being kept on the Tacoma meat markets which are being brought up to a much higher standard. Most of the arrests made are for selling uninspected meat.

### Important Legislation Crippled By Amendment.

Columbus, O.—An opinion of vital interest to cities, sanitarians and public health officials generally has been given to the state department of health by attorney-general McGhee, interpreting the recent Ellis bill, which wrote into the statutes certain amendments to the so-called Bense Act. These amendments which, it was insisted at the time of their passage, were merely to take care of a local situation, it now develops, practically destroy the main purpose of the Bense Act, which was to force purification of public water supplies and the abatement of stream pollution nuisances within the state. The Bense Act provided that municipalities could issue bonds to provide for water purification and sewage disposal to prevent stream pollution, when ordered so to do by the state department of health, without submitting the question of such bond issue to the vote of the people. Amendments to the law in this bill provide that the question of such bond issues shall be submitted to the vote of the electors. Sanitary engineers and public health officials of national repute have frequently cited the Bense Act as a model for other states and regarded it as one of the most efficient weapons in the war on typhoid fever. The question of submitting bond issues for such improvement to the vote of the people is not the only change effected by the amendments. The law as amended provided that the interest and sinking fund levies on account of the bond issues, shall be exempt from the limitations of the Smith one per cent law. "Evidently," says attorney-general McGhee in his opinion, "the General Assembly in creating exemption to tax limitations thought best to safeguard the issuance of said bonds by submitting them to the vote of the electors." Under the Bense Act, city councils were authorized to proceed with the sale of bonds under the existing machinery provided in the Longworth Act. The amended law provides that councils by an affirmative vote of not less than two-thirds of the members elected or appointed thereto, by ordinance, shall issue and sell bonds in such amounts and denominations, for such

period of time, and at such rate of interest, not exceeding six per cent per annum, as council shall determine and in the manner provided by law. The bonds authorized to be issued for any such purpose or purposes, in any one year, shall not exceed six per cent of the tax duplicate of the city or village. Under the old law the limitation was five per cent of the total value of all the property listed for taxation in the city or village. The attorney-general holds that section 1259 of the Bense Act as amended is an independent substantive power. Not only do the limitations of the Longworth Act not apply, but the procedure of the Longworth Act is necessarily not applicable. Under the Longworth Act when the question of issuing bonds is required to be submitted to the electors, a favorable vote of two-thirds of the voters at such an election is necessary. The attorney-general holds that in the absence of any specific requirement in the amended section to the Bense Act, the affirmative vote of the majority of all qualified voters voting at the election is necessary. This means that the proposition must receive the support of such number of affirmative votes as constitutes more than half of the highest total vote cast for the candidate for any office filled at election or upon any question submitted thereat. It does not mean a majority of the votes cast on the proposition, nor does it mean the majority of voters qualified to vote at the election.

The amended section is silent on the question of the number of affirmative votes which shall be required on the part of the electors to issue such bonds, also as to the method for holding an election, the form of ballot, and canvassing the vote. "However," says the attorney-general, "the most satisfactory disposition of the question would seem to be to hold that where a statute providing for the submission of a question to a vote of the electors of a subdivision, fails to provide for such matters as the form of ballots and the like, the authority to make such provision must result as an implied power in some officer or tribunal. The officer or tribunal having such implied power must be either the authority which submits the question to the electors or the board of deputy state supervisors of elections." He suggests that the city council of municipalities is the proper authority to determine the form of the ballots for election to be held under the above section. The attorney-general holds that such questions may only be submitted at regular municipal elections, which means that there is an opportunity to vote upon such a question only once in every two years, except in charter cities where frequency with which there may be an opportunity to vote upon the question may be determined by the frequency with which municipal elections may be held under the charter.

### Infantile Paralysis After-Care in Massachusetts.

Boston, Mass.—The Harvard Infantile Paralysis Commission, in cooperation with the Massachusetts state department of health, has been engaged since November of last year in providing proper after-care treatment for the children left crippled by infantile paralysis. Clinics have been held for the children in and about Boston at the Children's Hospital and at the Massachusetts General Hospital. In addition clinics have been held throughout the state at the following places: Newburyport, Springfield, Quincy, Lynn, Beverly, Greenfield, Worcester, Malden, Melrose, Lawrence, North Adams and Lowell. While it was the original purpose of the commission to confine itself to the treatment of the persons paralyzed in 1916 only, it was soon found necessary to care for those deformed by the disease prior to 1916. In all, 114 individuals have been treated. In 1916 there were reported to the state department of health 1,917 cases of the disease. Of this number 454 died. No paralysis resulted in 246 cases, and 303 were privately treated. There remained, therefore, 914 persons to be cared for by the commission. The commission has supplied treatment to 698 of this number and its field agents have visited 142 more. Therefore, only 74 persons in the state have not been reached to date. All the treatment and advice has been given free of charge, as well as much apparatus. Transportation has been supplied in many instances by volunteer automobile drivers.



The work of the commission will be maintained as long as the public contributions support the work and the children require treatment.

## WATER SUPPLY

### Pressure of New Supply Causes Break.

New York, N. Y.—Under the high pressure of the new Ashokan water supply an old 36-inch water main burst in early morning, and hundreds of thousands of gallons were expelled with such force as to break through the concrete pavement. The geyser gushed to a height of six feet or more and inundated a downtown section of the city for blocks. The water poured down into the Interborough and B. R. T. subways through emergency exit gratings and down the stairs of entrances and exits, submerging the third rails and thus cutting off power. For almost ten hours the Interborough was out of business between 14th street and Brooklyn Bridge, and the Manhattan branch of the B. R. T. (Canal street to the Municipal Building) also was blocked throughout the day and until shortly after eight o'clock at night. It was well on in the afternoon before the trains on the subways had worked back into their regular schedules. Patrolman Mayo saw the column of water rip through the pavement. He turned in a call that brought reserves, and a cordon was thrown around the flooded district. Many places were discovered where the streets had sunk alarmingly. The cellar of the Court House was flooded, but the Tombs escaped. The Interborough put two centrifugal pumps to work in the Canal street station, and it took five hours to bring the surface down to the third rail. Superintendent of water supply Mead put a gang of twenty-five men to work locating ten gates in the main three blocks north of the break and ten gates three blocks south, and in two hours these gates were shut and the flood stopped.

### Sue Commission for Rate-Reducing Order.

Portland, Ore.—Suit against the public service commission and its members individually has been brought in federal court to enjoin the commission from enforcing an order reducing the Sutherlin Land & Water company's water rates. The corporation serves settlers in the Sutherlin valley in Douglas county. The plaintiffs are the DePauw university of Indiana, the Luse Land & Development company, of Canada; the Northwestern Trust company, of Minnesota, and I. C. Oehler, the trustee of the Oregon concern. The injunction is sought on the grounds that the commission has no right to fix the water rates where a corporation furnishes water only to purchasers of its lands. It asserts that the limitation thus created puts it outside the pale of a public utility and therefore is not within the commission's jurisdiction.

### New York City Sells Water to Newburgh.

New York, N. Y.—Last July, the Commission of Water Supply, Gas and Electricity was authorized, in the event of emergency, to permit the city of Newburgh to purchase, at the rate of 10 cents per 100 cubic feet, an amount not to exceed a total of 5,000,000 gallons of water from the Catskill reservoir. Now the commissioner has been empowered to enter into an agreement with the city of Newburgh for a supply of water to the latter from the Catskill aqueduct. The price which it is proposed Newburgh shall pay for New York City water is 10 cents a hundred cubic feet. The initial contract is to be for 500,000,000 gallons instead of only five. The commissioner informed the board that he had investigated the Newburgh water situation and found that city's available stored supply nearly exhausted. Chief engineer of the board of estimate presented a report on the situation. He said: "It appears that in presenting this request to the New York City authorities there was a misunderstanding as to the amount of water which Newburgh might need. Mr. Henry Wilson, the city manager, has advised the commissioner of water supply that the daily consumption of Newburgh is about 4,500,000 gallons, so that the supply which the commissioner was au-

thorized to sell to the city would have amounted to about one day's supply. It appears that what Newburgh intended to ask was authority to purchase a total of possibly 500,000,000 gallons. This statement of the city manager was supplemented by a later communication in which he said that expert engineers were making an investigation as to the best method of increasing Newburgh's water supply, but that, while this investigation was in progress, the needs of the city were dangerously near its present available supply, notwithstanding the fact that the use of water was being restricted in every possible way. The emergency appeared to be a very real one and the city of Newburgh knew of no source of relief except through the favorable consideration by the city of New York of its request. The commissioner of water supply states that arrangements can be conveniently made for discharging water from the aqueduct through a blow-off valve on the Washington Square siphon into Silver Stream, which feeds the Newburgh reservoir, and that this can be done without diminishing the available amount of water which can be delivered into Kensico reservoir for the use of the city of New York and that the sale of this water would be a clear financial gain to the city. The amount which the city would receive for 500,000,000 gallons at the rate above named would be over \$66,000 for water which the city of New York does not need at the present time and which represents the total capacity of the Catskill Aqueduct for one day, while the sale of 5,000,000 would represent a return to the city of about \$660. There would, of course, be no obligation on the part of the city to continue to supply the city of Newburgh after the amount named above had been taken."

## STREET LIGHTING AND POWER

### Public Service Commission Economical.

Indianapolis, Ind.—The Indiana public service commission, according to an announcement from E. I. Lewis, the chairman, turned back into the state treasury at the end of the state's fiscal year a total of approximately \$50,000 from the appropriation for the fiscal year of 1916-1917. Credit for the reverting of this sum does not lie entirely with the present reorganized commission, Mr. Lewis pointed out. He said that part of the credit is due the former commission presided over by Thomas Duncan, which went out of office May 1. The total appropriation at the command of the commission for the fiscal year just closing was \$115,000 and for the ensuing year it will be approximately \$109,000. Mr. Lewis said the percentage of savings during the period from May 1 to the present time was greater in proportion than from October 1, 1916, to May 1, 1917. The greater saving made since May 1 is due in great part to the retrenchment of the commission in the number of persons employed by it. The engineering staff has been cut from seventeen persons to eight. The railroad inspectors have been decreased from seven to six, notwithstanding the fact that the commission has been busy with the coal situation, which called for the use of railroad inspectors constantly. The accounting department formerly had eight persons and now has five. When the reorganized commission came into power it found 557 old cases on the docket. The present commission has practically cleared the docket of all utility cases, other than the common carrier cases, although since May 1 an additional 450 new cases have been filed. During the last four years the new cases filed annually have averaged 760. Commissioner Lewis said that the commission expects to have its dockets cleared by January 1. Another important accomplishment was the final disposal of the last of the electric light surcharge cases, which have been holding the attention of the commission since the Indiana Electric Light Association filed a blanket petition, asking the commission to grant its component members authority to add a 30 per cent. surcharge to each of their bills for services to customers, because of the abnormal cost conditions of the war period. The original blanket petition covered twenty-eight electric companies, operated in sixty

Indiana towns and cities. Shortly after the petition was filed it was decided that the electric light association had no power, under the Indiana utility law, to petition the commission, but that the individual companies must petition for war time relief. Eventually many companies filed individual petitions for relief, but the records of the commission show that only six companies—after an investigation of the financial situation of all companies which petitioned individually—should have relief, under the attitude toward such cases the Indiana commission has assumed. These six companies, supplying nine Indiana towns and cities, including Indianapolis, received relief by way of orders authorizing surcharges. In granting relief to each of these companies, however, the commission did not take dividends on common stock—at least not to the 6 or 7 per cent. return mark—into consideration. The state body merely made sure, in its relief orders, that a proper depreciation allowance was made and that bond interest was taken care of during the present war emergency. Chairman Lewis said the idea of the commission has been to keep the utility companies "skin-whole" during the war crisis wherever possible, but not to relieve the companies entirely by surcharge relief from all the burdens of the war conditions—to which all the people are alike subjected.

The final surcharge petition dismissed was from the Indiana Utilities Company, which operates in several cities in northern Indiana. Chairman Lewis announced, after dismissing this case, following an exhaustive survey of its financial condition by auditors and engineers of the commission, that the commission intends the public generally to know that the state regulating body will "see the utilities through" the present emergency, granting all reasonable relief to the point that will keep the utilities unharmed in operation by the war period's troubles. The utilities generally, Mr. Lewis said, had evidenced a most reasonable attitude toward the present conditions and in many cases in which surcharges were asked, had not asked for the guaranteeing of common stock dividends.

The third important conclusive action, taken by the commission with the end of the fiscal year, was final action on the last one of the petitions under which steam and hot water heating companies asked for wartime relief. Twelve applications for relief of that nature have been filed with the commission during the last few months. These twelve utilities operated in fifteen towns and cities. The commission granted wartime relief to each of the twelve companies, the explanation for this wholesale action readily being visible in the fact that these companies find the greatest factor in their operation in the coal situation. The "outrageous" prices charged Indiana utilities and the public generally for coal has been reflected in all of these heating cases, compelling the commission to take cognizance of it throughout. The relief granted these heating companies by orders from the commission varied from 2 cents a square foot of radiation to 6 or 7 cents a square foot, except in the Crawfordsville case and a special agreement case at Terre Haute, where the customers of a small heating plant of the Terre Haute, Indianapolis & Eastern Traction Company agreed to an increase of from 50 per cent. to 100 per cent. in their bills for the season because of the war situation. In the Crawfordsville case the commission's engineers showed that an 8-cent increase was imperative to save the company's property. In these increases in heating rates the commission's orders invariably have limited the addition of the surcharges to the ensuing heating season and in no case will the authority for such increases extend beyond one year, under the recent orders. The last case of the sort handled by the commission was that in which the Laporte Gas and Electric Company had petitioned for authority to increase its heating rates from 17 cents to 25 cents a square foot, and to discontinue its hot water heating service for range boilers. As in the Crawfordsville case, where an agreement between customers and the company finally had been arranged, the commission sent the petitioners back to Laporte to arrive at an agreement with their customers. An agreement was reached, which the commission approved. Under its terms the company is allowed to increase its rates from 17 cents to 20 cents a square foot of radiation and to place a charge of \$7.50 to \$10 for the range boiler service.

#### Vote Against Sale of City Plant.

Marshalltown, Ia.—By a majority of 252, out of about a two-thirds normal vote, voters refused to authorize the proposed sale of the city's street lighting system to the Iowa Railway and Light Company for \$15,000. By a majority of 233 the voters refused to sanction the proposed contract under which the city may purchase street light from the Iowa Railway and Light Company. Failure of voters to vote on the questions, their indifference, and their lack of information, or their voting under misinformation on the subject were said to be accountable for the proposals not carrying, and thus, it is claimed, saving the city \$3,000 a year in taxes and getting eighty-four more lights for intersections. The Marshalltown Club and the Marshalltown Trades and Labor Assembly endorsed the city council's proposal to sell the old, worn-out street lighting plant for \$15,000, and buy more lights from the local utilities company, for the following reasons:

"1. The price of \$15,000 is a good price for a property which our city electrician has appraised at \$9,000, and the present plant is wholly inadequate to supply our city with the additional lights needed. 2. It would cost nearly \$50,000 to build a new plant and war prices for electrical material are prohibitive at the present time, with machinery almost impossible to obtain until the war is over. 3. The operating cost of such a plant would be \$2,350 per annum, more than the city can purchase its lights based upon the city's present cost, and this would save us \$23,500 in ten years. 4. Our council can and will reduce our tax levy for street lighting purposes because the \$15,000 received from the sale, together with the tax already levied for next year, will make it possible to reduce said street light levy of 5 mills to almost nothing for approximately three years after this year, and it will make some reductions in our present street light tax possible for the entire ten-year period proposed in the rates now offered to the city. 5. We are convinced that it will not be economical for the city to produce its own street lights until it is ready to take over the entire lighting business of the city, "both private and public." The refusal of the voters to authorize the sale, while it prevents the council from selling the plant, does not prevent the council from entering into a contract for the purchase of the light. It is probable that the council will do this because of the saving that can be made and for the sake of procuring more lights. In event that it is done the city's plant will stand idle and will depreciate rapidly. In fact, it is said, that it cannot now be sold, other than to the Iowa Railway and Light Company on the offer made, for anything more than junk prices. It would, however, be possible for the city council to contract for light, save \$3,000 a year by doing so, and thus reduce the tax levy for lights after next year to probably 4 mills, instead of 5 mills, the present levy. The latter levy is the maximum the city can levy for street lighting, so that it has no means of raising the money for the rehabilitation of the plant except by a bond issue.

---

## FIRE AND POLICE

---

#### Industry Halted by Power Plant Fire.

Charleston, W. Va.—A blaze which partially destroyed the power plant of the West Virginia Water and Electric Company put the industries and business of the whole city dependent on this current out of commission for more than a day. By connecting up with the power plant of the Charleston Interurban Railroad Company the West Virginia Water and Electric Company was able to furnish power sufficient to operate all plants in the city using its service, to enable resumption of elevator service in all buildings, to provide water for the South Side and to insure lighting throughout the city. The voltage was maintained until repairs in progress on the partially burned electrical station at the power plant was completed. From the moment that the interior of the power and light plant became cool enough to allow officials and employees to enter the most strenuous efforts were put forth to rig up the badly damaged machinery and give



light for the city. Conservative estimates place the damage done manufacturing concerns, theatres, pool rooms, cigar stores, restaurants and other places of business open in the evening at more than the loss done to the light plant by the fire. Newspapers were also at a considerable loss because of the fire. Throughout a day and night the people of South Side heights were without water, and springs and wells were much sought. Electric service was given in that part of the city all night, but the lights were rather dim and inefficient. Lack of water in that elevated residential portion of the city was due to lack of power to pump water up the stand-pipe, located on the highest hill of the tenth ward. In the business district downtown merchants were greatly inconvenienced for lack of power to run the elevators in their buildings, and all day employees were put to the necessity of carrying goods up and down stairs.

#### Change in Two-Platoon System.

Buffalo, N. Y.—A change in the two-platoon system, in use in the fire department recently, became effective. Instead of changing shifts every week—on Saturday—the firemen now change every six days. President John J. Flood, of the Dauntless Club, the firemen's organization, took the matter up with chief Bernard J. McConnell, and urged that the change be made. Under the old method the firemen worked one long Saturday, staying in quarters twenty-four hours uninterruptedly. Each alternate Saturday they were off duty from Saturday morning to Sunday morning. Mr. Flood pointed out to the chief that the firemen were absent from home each alternate Saturday and that in a measure they were deprived of spending time with their children. Inasmuch as Saturday is the only day the children are home from school, Mr. Flood asked that an arrangement be made to permit the long working day to fall some other day of the week. When the two-platoon went into effect in July, 1916, the firemen's leaders urged that a change be made every third day, but chief McConnell decided to try out the weekly change at least for a year. The firemen say the change every sixth day will please them and at the same time not impair the efficiency of the department.

#### Two-Platoon System Causes Insurance Rates Raise.

Tacoma, Wash.—Three days after the fire department started on the double shift, property owners throughout the city were notified that their insurance rates had been raised 15 per cent. by the Washington Fire and Rating Bureau on account of "decreased efficiency of the fire department." At a conservative estimate this raise will cost the property owners of the city \$75,000 yearly. To hire the forty additional men, which had previously been asked by the commissioner of public safety for the remainder of this year, would have cost, in round numbers, \$12,000. Their pay for any one year would not exceed \$45,000. The department of public safety states that: "In one instance the people of the city are penalized \$75,000 and have no increased protection. In the other they have as much or more fire protection as formerly, and every cent goes to local citizens whose homes and interests are in this city, and at a saving of at least \$30,000 a year. As to how the fire department can operate a double shift with the same number of men formerly on single shift, the matter is explained, first, by saying frankly that the efficiency of the department has decreased at least 30 per cent. The question that first confronted the department was: Should the outlying stations be abandoned and the central fire stations fully manned, or should all of the stations be operated with half of the number of men? In either case it would be necessary to abandon all preventive inspection work. It was realized that much territory in the outskirts had been given but little protection, and that past reductions in the number of men had compelled the abandonment of one outlying station (No. 10) and lowered the number of men in other outlying companies. Again the abandonment of No. 10 had proven serious, as it had been impossible to save houses in this district after the apparatus had arrived from No. 13, the next station. Un-

der these conditions the only workable solution was to operate all stations, as then all apparatus, at least, would be available in case of a conflagration. Therefore, all companies were kept in operation, and the number of men on duty at any one time was approximately half the number formerly attached to each company. A little leeway was gained because, during the 24 hours that the men formerly worked three meal hours were provided for each man. Thus during nine hours of the day the companies were short each from two to three men. Also each man on a company was off one day in eight, and so it had been necessary to maintain in each engine company of seven men one relief-man, which made the total strength of eight men, but as one man was off each day the average strength would be reduced to seven men, while the minimum strength of such company during the meal hours would be only four or five men. No meal hours are granted under the two-platoon, and there are no days off, so that the efficiency is considerably more than half, so far as men are concerned, and all of the apparatus is maintained in service. Formerly most of our engine companies were seven-men companies with one relief-man. Some of the hose companies have been reduced as low as two men per shift, which is too low to handle hose and apparatus. Chief F. L. Stetson, of Seattle, says that the minimum number of any engine company should be eight men. In Portland the number is nine men. The difficulty of operating an engine company with only three or four men is easily seen. It means a tremendous slowing up in getting a stream on the fire at a time when every second counts. The fire preventive inspection which has been rigorously maintained, but which the department was compelled to abandon on the advent of the two platoon, could be carried on again if the additional men asked were granted. It is admitted that thorough fire inspection has reduced the number of alarms in the last year 15 per cent. It is courting disaster to abandon it. Under the rules establishing the double platoon, all firemen must maintain telephones in their homes, and respond on second alarms. This gives the city the benefit of the whole force in case of conflagration. This, however, would at present be no more men than the city has always had in service. If additional men were allowed it would be a factor providing protection during great fires, which, fortunately, the city has never had, as yet. The fact remains, moreover, that it is the height of folly to allow the insurance rates to be raised so that the total cost to property owners will be almost double the amount necessary to put the department on an efficient basis."

#### Nineteen Dead in Mission House Fire.

Paterson, N. J.—Eighteen bodies were taken from the wreck of the four-story brick Salvation Army Rescue Mission swept by an early morning fire which cut off scores from the single fire escape and forced many to leap from windows at the third and fourth floors. The nineteenth victim died in the hospital to which ten others were taken. Spectacular rescues cut down the toll of the flames, but many persons died in the frantic scramble for exits, five being found in a heap at the foot of a charred stairway. Cripples and rheumatic old men, helpless to struggle against those who fought to reach the stairs, suffocated or were burned to death. Inspector of Buildings John Quigley insisted that both state and municipal laws had been complied with and that there was a sufficient number of exits to meet the law's requirements. The mission was a red brick structure of wide front built twenty-two years ago, and gave free lodging to those who could not pay for beds and who were willing to chop or saw wood. The building had 140 beds. Eighty-four men were asleep in the building when the fire started. In the rear of the mission was a one-story wooden shed, separated by only a few yards from the main building. Adjoining the mission and the shed was a two-story stable. In this and the shed were stored varnish and a great quantity of old newspapers and magazines that had been collected by lodgers. In the yard, about fifteen feet from the fire escape at the rear of the mission, was a pile of cordwood 20 feet high. The

night clerk and watchman glanced from the rear window at 1 o'clock in the morning and saw a spark flickering in the paper-stocked shed. In a moment the wind had fanned the spark into flames. He rushed upstairs, shouted "Fire" and rushed back to the desk. The watchman at a nearby silk mill saw the flames and sent an alarm. Two blocks away a man saw a tongue of fire shoot up and he, too, turned in an alarm. The resultant mixup at fire headquarters delayed apparatus several minutes. Fed by paper, cord wood and excelsior that had been piled under the fire escape, the flames swiftly ate their way, with the aid of a stiff breeze, along the rear of the main building. Lodgers in the basement reached the street with little trouble. As the flames crackled into the building the men asleep on the third and fourth floors became panic-stricken. Scores rushed to the rear to run down the fire escape. They were flung back by sheets of flame. They plunged toward windows on the side and were stifled by smoke. Then they fought their way to the roof and looked down on the street. Firemen had spread a net. It was the only means of escape. Tearing at one another in a mad scramble for a chance to leap to the net several lost their balance at the edge of the roof and fell over. But by great luck they landed safely in the net. Eleven dived into it. A twelfth man was poised on the cornice preparing to leap, when from behind rushed a figure that jumped, striking him and hurling him out and down. He struck the railing of the stoop and received injuries which caused his death. Police Lieut. Joseph Mosley and patrolmen William Fitzgerald, Eugene Wilde and Fred Bishop dashed through the second and third floors of the mission, pulling and shoving men to the wooden stairway. But the flames and smoke were too much for the policemen, and after several rescues they had to stagger back to the street. Frank Costello, sixty, a lodger, formerly a Paterson fireman, gave his life to save men on the fourth floor. Imploring them to file out as calmly as possible, he remained behind to help until his last chance to reach safety had been cut off. Eleven bodies were found on the fourth floor, charred in their cots. Two bodies were on the third floor.

#### **Burning Almshouse Saved by Long Run.**

Atlantic City, N. J.—After a run of eight miles across the meadow boulevard, two companies of Atlantic City's motorized fire department saved the county almshouse at Smiths Landing on the mainland from destruction by fire. A wagonshed in which the fire started and a barn containing hay stored for the winter were destroyed with an estimated loss of \$15,000. Several horses were saved. A fire company from Pleasantville found that its hose line would not reach from the nearest plug to the blaze, and the \$80,000 almshouse with nearly 100 inmates was in grave danger when the Atlantic City companies arrived and went into action with chemical batteries and water lines. An engine company which came from Somers Point, eight miles distant, also did effective service.

#### **Big Pier Fire Arouses Baltimore.**

Baltimore, Md.—Burning a big freighter and its valuable cargo, a number of lighters and two huge piers, a difficult fire, ascribed to an incendiary, caused damage estimated at between \$4,000,000 and \$5,000,000 and the loss of a number of lives. The result has been the arrest of three suspects and the drawing of a tight net around the waterfronts of all cities in the country against enemy aliens. The fire occurred at piers 8 and 9 of the Baltimore & Ohio Railroad's big terminal development and for a time the railroad's grain elevators, containing grain for the Allies, were in danger because of the wind blowing in their direction. On the burnt piers were stored large quantities of munitions and there were five explosions at about the same time. The ship Kerry Range, which had arrived in port the day before, was a total wreck. The firemen found that the anchor had been dropped and the ship could not be moved. The crews of the Deluge and Cataract, the two city fire-fighting boats, and the fire-fighting tugs of the railroad company and other transportation concerns in

the harbor worked on the burning vessel. Finally the great freighter was cut loose and was backed clear across the harbor to Canton Hollow. Holes were cut in the side of the vessel, so that the coal bunkers might become flooded, and as a consequence the ship settled in about 18 feet of water, and the stern rested on the ground. The water did not quite reach the coal bunkers and for hours the firemen swarmed over the top decks and down into the smoke-filled hold. Time and again the men were driven out of the hatches and the holes, which they had cut in the decks. There were about 15 men on board when the fire started and a number of these and of pier workers were missing. The whole fire department was engaged in the battle and the mayor hurriedly left a dinner party and rushed to the scene. The sharp, biting wind of the early hours before dawn caused a great deal of hardship and suffering to the men who had been battling with the flames. Nearly fifty of them were overcome, either by the cold wind that blew in or by the fumes of the burning wood pulp. The firemen, as they fell from exhaustion, were helped to places of safety by their companions and attended by the fire department physician, Dr. J. J. Valentini.

#### **Two Firemen Burned.**

Tulsa, Okla.—Ross Shepherd and Ben Manes, two members of the Tulsa fire department, lost their lives in a fire which destroyed a half block of business houses, entailing a loss estimated at approximately \$475,000. Both men were killed when a stairway fell, pinning them under the ruins. The fire was the most disastrous in Tulsa's history and low water pressure, caused by scarcity of gas, made the fire fighting difficult.

#### **Difficult Fire Breaks Out in Ruins.**

Cleveland, O.—After being apparently under control for two hours the flames which destroyed the Nottingham building broke out afresh, and threatened to completely destroy another large store building. The firemen were unable to reach the new blaze, being blocked by the smoldering ruins. Streams from water towers fell short. After twelve hours of strenuous fighting, the fire, which had eaten into the heart of the retail business district of Euclid avenue, was under control at ten o'clock next morning. Damage between \$300,000 and \$400,000 was done to three of the biggest clothing stores in the city and to smaller shops and office buildings. Five times during the night and morning the firemen announced the blaze was under control only to have it break out again in another quarter. Fanned by a brisk wind from the lake the flames spread to adjoining buildings. The greatest damage was done by smoke and water.

#### **Big Garage Fire Burns Many Trucks.**

Philadelphia, Pa.—In the destruction by fire of the Adams Express Company garage between seventy-five and one hundred of the company's automobile delivery trucks and the entire building, covering more than an acre, were consumed within two hours. It was the third fire of a quarter million dollars' proportions in that vicinity within the last six months. The flames, fed on timbers and gasoline-soaked walls, spread through the building with startling rapidity after the nearby engine companies responded to the first alarm. All street traffic for two blocks in every direction of the building had to be suspended, while surface cars were put out of commission. Several cleaners were in the building when the watchman saw a sheet of fire sweep up the front elevator shaft. For almost a half hour the firemen combated with the flames. They were hopeful of confining the blaze to the front of the building, when a series of gasoline tanks exploded. Then the fire mushroomed to the upper floors, sending sparks high into the air. A combination second and third alarm were sent to fire headquarters, and within fifteen minutes later a fourth and fifth call for all the downtown fire apparatus were sounded. Fanned by a brisk wind, the burning brands showered on neighboring buildings and at least eighty streams of water were in action to prevent a greater destruction of property. Two blocks away was a herd of



about twenty-five steers being led to railroad stockyards. The whistles of the motor engines and the ringing of the truck bells almost immediately threw the animals into confusion. Their hostlers fought with them, but half of the herd stampeded into the street. Marines and soldiers formed a herding party and helped round up the animals in nearby barns. High tension electric wires stretched along one side of the building, placed two companies of fire fighters in peril as they attacked the flames from the roofs of nearby buildings. The streams from the hose lines tore down several sections of the wires, which was followed by a short circuiting that put out the street lights for several blocks.

#### Firemen Get One Day Off in Five.

Elmira, N. Y.—The fire commissioners have decided that the firemen in the city employ shall have one day off in every five. Heretofore one day every sixth day has been granted to the men. The fact that they are on duty continuously, being required to be at their headquarters constantly, is responsible for the added relief given under the ruling.

#### Six Firemen Hurt in Wharf Blaze.

Boston, Mass.—Fire, which it is suspected may have been intended to destroy the storage sheds of the United States Navy on Battery wharf, caused loss which may reach \$150,000 to storage sheds on Constitution wharf. Six firemen were injured, being caught under falling bales of hemp while fighting the flames within the shed, and two horses attached to the hose wagon of Engine 4 were killed. Something that fell from the "L" structure frightened the horses, and, after running nearly a mile, they dropped into a ditch, dug for water mains, in North street. One was instantly killed, and the other was shot. There were two explosions, one closely following the other. One end of the shed, which is a story and a half high, broke into flames almost immediately. Four alarms were sounded, there being serious danger of the fire spreading along the waterfront. The burned shed is separated from the naval storage shed by only a narrow space. The burned shed was filled with general stores, including thousands of bales of hemp, barrels of oil, quantities of cotton waste and about 150 automobiles, which had been received from the railroads. Not all of the hemp was burned, but scarcely a bale escaped water damage. In addition to the land apparatus, three fireboats worked to keep the flames from spreading, the fight for the most part being conducted at close quarters because of restricted space.

#### War on Flimsy Lodging Houses Follows Fire.

San Francisco, Cal.—The board of health has taken steps to close all the fire-trap lodging houses in the city. Civil suits against the owners, tenants and lessees of nineteen lodging houses in this city, condemning their houses as fire-traps and a menace to public health and safety, and asking for a court order to have them vacated, were drawn up in the district attorney's office by assistant district attorney A. B. Bianchi, acting as attorney for the board of health. These suits were filed in the civil court. The name of Arthur Barendt, president of the board of health, appears as the complainant. The com-

plaints recite that the owners or lessees are maintaining as lodging houses buildings with defective plumbing, poor sewerage and ventilation, thereby rendering them a menace to public health and safety. The complaint also asks for an order from the court to have these premises vacated until such time as repairs are made or the places are condemned. This action grew out of the tragedy of the Owl lodging house, which proved to be a fire-trap when it caught fire, costing the lives of assistant fire chief Stephen D. Russell and two firemen. At the coroner's inquest it developed that the board of public works had no jurisdiction over the condemning of such buildings as long as the building law was complied with. The coroner's jury demanded that the board of supervisors pass the necessary ordinances to protect the lives of the firemen. Thomas R. Murphy, chief of the fire department, and John Horgan, chief building inspector of the board of public works, were called to the witness stand during the inquest. Inspector Horgan testified that the board of public works had no jurisdiction over condemning such buildings when they comply with the building laws. Chief Murphy testified that he had answered the Owl lodging house fire after the third alarm had been sent in, and when he saw that the building was in danger of falling he ordered all his men to leave. He said he did not believe that Russell and the other two men were disobedient when they remained in the building, but he attributes the fact to their anxiety to reach the base of the fire. The State Bureau of Immigration and Housing is backing the state board of health and the board of public works in the condemnation of flimsy rooming houses and hotels. The legal action is being taken under the new regulations of the Immigration and Housing Commission, which became effective September 1.

### MOTOR VEHICLES

#### Towards an All-Motor Department.

Newark, N. J.—Eight more pieces of fire department apparatus will be motorized as a result of recent action by the fire board. The tractors will be for truck companies Nos. 4 and 8, and one of the reserve trucks, the steamer and hose wagon of engine company No. 12, the hose wagon of Engine Company No. 15, the water tower and the wrecking car. The steamer of Engine Company No. 15 already is motorized. When these plans are carried out all the truck companies of the department will be motorized.

#### New Pumper Does Well in Test.

Syracuse, N. Y.—The fire department recently received from the American-La France Fire Engine Co., Elmira, N. Y., its new type 75 triple combination piston pumping engine. A test was held at the canal under the supervision of master mechanic Trotter. The pump is rated at 800 gallons, at 120 pounds pump pressure, but during two hours of the four-hour test, it easily developed a capacity of over 900 gallons per minute at 120 pounds. The machine has a hose body for 1,200 feet of 2½-inch fire hose, equipped with a forty-gallon Babcock chemical tank and 200 feet of ¾-inch hose. It carries a twenty-foot solid side extension ladder and a 12-foot roof ladder. The car is equipped with a self-starter. The tires are United States, solid.

#### Whole Department to Be Motorized.

Terre Haute, Ind.—The first of the three new Seagrave pumping engines has been received and tested out. The machine weighs 12,820 pounds, has a 126-horse power motor and is capable of a speed of 60 miles per hour. This machine is guaranteed to throw 750 gallons of water per minute, but can do much better under favorable conditions. The old engines, which the new motor machines are displacing, were capable of throwing about 600 gallons per minute. This pumper takes the place of two pieces of apparatus and does away with four horses. It carries complete fire-fighting equipment. Two more pumpers, similar to the one already received have been ordered and



NEW TRIPLE COMBINATION FOR SYRACUSE, N. Y.

will arrive in the city within a short time. When these two machines arrive and are accepted the motorization of the Terre Haute fire department will have been completed and it will have 19 pieces of motor apparatus. It is claimed that Terre Haute then will be the first city in Indiana to have a complete motor fire department.

#### Vote for Purchase of Motor Apparatus.

Natchez, Miss.—Of the entire vote in the special municipal election, held to determine whether or not the city should purchase motor fire apparatus to supplant the present antiquated and insufficient equipment of the No. 2 and No. 7 fire companies, there were only five ballots against the proposition, while 509 gave endorsement. The result of the election means that the bids of the various manufacturers of motor fire apparatus will be considered and contracts awarded. With the authorization given by the election the city will expend \$13,500 for two pieces of motor fire apparatus. For the No. 2 company a combination hook and ladder truck will be purchased; for the No. 7 a combination hose reel truck.

### MISCELLANEOUS

#### Municipal Lake Resort Profitable.

Fort Worth, Tex.—Lake Worth is a paying proposition, according to city auditor Adams, who has produced figures to back up his statement. He showed that when the municipal bathing-house was opened in June the city commission was forced to pay for the building and equipment and borrowed \$15,000 to start the season. Since the opening in June the crowds which have taxed the capacity of the pavilion have paid their fees for the privilege of using the lake, and to date the building and equipment has been entirely paid for and the city has \$5,890.29 on hand to pay on the \$15,000 note. Mr. Adams stated that while the lake possessions would not be paid for by the end of this season, but by the early part of the next season the city will be out of debt on the lake. The city commission, led by mayor Davis, is planning many improvements for the beach and the pavilion, which will be made as the money derived from the sources at the lake rolls in next summer and each summer thereafter.

#### Public Utilities in New Jersey.

Trenton, N. J.—The state board of public utility commissioners has issued its statistical report for the calendar year 1915. The general revenue and expense figures for the various groups of utilities in the state are as follows:

	Operating Revenues	Operating Expenses	Operating Ratio (Per Cent)
Electric railways .....	\$19,110,000	\$10,230,000	53.5
Gas companies .....	13,190,000	6,535,000	49.5
Private electric utilities...	12,650,000	5,095,000	40.3
Municipal electric utilities	163,000	101,000	62.2
Private water utilities...	4,720,000	1,610,000	34.1
Municipal water utilities...	5,550,000	1,945,000	36.4
Telephone companies.....	9,815,000	4,325,000	44.1
	\$64,998,000	\$29,841,000	45.9

This table includes the revenues and the expenses of every utility whose gross revenues for the year exceeded \$10,000—or 99 per cent of the total gross revenues of all utilities in the state.

#### Court Upholds Regulation of Parking Space Use.

Washington, D. C.—Chief justice Covington of the district supreme court has sustained the right of the district commissioners to exclude from use by merchants the parking space in front of their places of business. He denied a petition of Joseph L. Crupper, a lumber merchant, for a mandamus to compel the commissioners to rescind an order to him to remove lumber piled in front of his yards. The court holds that the action of the commissioners involved the exercise by them of a discretion reposed in them by sundry irrelevant acts of Congress. No abuse of this discretion is disclosed in the case at bar, the court declares. "No words can be found," says the chief justice, "either in the last proviso of the act of July 1, 1898, or the amendment of the act of February 2, 1904, which grants to the abutting property owner any right in the sidewalk or parking in a business street on which his property abuts.

### LEGAL NOTES

#### A Summary and Notes of Recent Decisions— Rulings of Interest to Municipalities

##### Installing Fire Sprinkler—Power of Fire Commissioner.

(N. Y. Sup.) Power of fire commissioner of Greater New York to order installation of automatic sprinklers without rules held not taken away by ordinance that all buildings shall be provided with such sprinklers as may be required by and conforming to rules of the fire commissioner.—People ex rel. Adamson v. Miller, 165 N. Y. S. 790.

##### Testing Fire Engine—Liability for Damages.

(Neb.) Where city motor vehicle, assigned to fire department, was being tested under its direction and was not in performance of any governmental duty, such as answering emergency call, city is liable for damages caused by its unlawful operation.—Opocensky v. City of South Omaha, 163 N. W. 325.

##### Dismissed Fireman—Right to Pension.

(Minn.) Where a fireman was dismissed for cause and his application to be placed upon pension roll of fire department relief association was denied, and he took no steps to be put on pension roll for over twelve years, his action therefor was barred by limitations.—Lund v. Minneapolis Fire Department Relief Association, 163 N. W. 742.

##### Resignation of Employee—Civil Service.

(Minn.) Where city employee filed his resignation, and found other employment, the resignation and acceptance was a voluntary relinquishment of office by a method not in violation of city's civil service policy.—Byrne v. City of St. Paul, 163 N. W. 162.

##### Limiting Buildings Within Fire Limits.

(Ky.) Under Ky. St. § 3490, council of city of fourth class had power by ordinance to prohibit erection, within specified fire limits, of buildings made of frame or wood, part frame, hollow concrete blocks, and iron-clad or veneered structures or tents.—Galanty & Alper v. City of Maysville, 196 S. W. 169.

##### Violating Fire Limits Law—Penalty.

(Ky.) Where city's fire limits ordinance provided penalty by fine for violation, remedy was not exclusive, but city could, in civil case, secure removal of building erected or repaired in violation of ordinance.—Galanty & Alper v. City of Maysville, 196 S. W. 169.

##### Erecting Buildings in Conflict With Ordinance.

(Ky.) Despite Ky. St. § 3490, council of city of fourth class could not grant permission to individual to erect building in conflict with its general ordinance, prohibiting erection of such buildings within specified fire limits.—Galanty & Alper v. City of Maysville, 196 S. W. 169.

##### Municipal Advertising—Lowest Bidder.

(N. J.) Publishing of municipal advertisements in newspapers is neither "work, labor nor materials" furnished by owners of papers, under P. L. 1912, p. 593, requiring municipalities to let contracts therefor to lowest bidder.—Dolker v. Board of Chosen Freeholders of Atlantic County, 101 A. 370.

At most the commissioners were simply directed to permit him to use such portion of it as in their judgment might not be needed by the general public under such general regulations as they may prescribe. And the fact that Mr. Crupper, as an owner of property abutting on a business street, is not able to use the parking in front of his property under regulations presumably sufficient for many other citizens, while possibly a misfortune to him, does not operate to prevent the regulation from being one of general application." The court finds that the regulation is a compliance with the mandate of the statute and declines to interfere with its operation.



## NEWS OF THE SOCIETIES

### Calendar of Meetings.

**Nov. 13.—NATIONAL TAX ASSOCIATION.** Annual conference, Atlanta, Ga. Secretary, Fred R. Fairchild, Yale University, New Haven, Conn.

**Nov. 14-16.—FIRE MARSHALS ASSOCIATION OF NORTH AMERICA.** Annual convention, New Orleans, La. Secretary, W. M. Campbell, New Orleans, La.

**Nov. 15-16.—ASSOCIATION OF URBAN UNIVERSITIES.** Annual meeting, Pittsburgh, Pa. Secretary, Frederick B. Robinson, City College, New York, N. Y.

**Nov. 19-24.—CITY MANAGERS' ASSOCIATION.** Annual meeting, Detroit, Mich. Secretary, W. L. Miller, City Manager, St. Augustine, Fla.

**Nov. 20-21.—ASSOCIATION OF GOVERNMENTAL RESEARCH AGENCIES.** Third annual meeting, Detroit, Mich. Secretary, C. O. Dustin, Statistical Bureau, Red Cross War Council, Washington, D. C.

**Nov. 20-23.—PLAYGROUND AND RECREATION ASSOCIATION OF AMERICA.** Recreation Congress. Secretary, H. S. Braucher, 1 Madison Ave., New York, N. Y.

**Nov. 21-24.—NATIONAL MUNICIPAL LEAGUE.** Twenty-third annual meeting, Hotel Statler, Detroit, Mich. Secretary, Clinton Rogers Woodruff, 703 North American Bldg., Philadelphia, Pa.

**Jan. 3, 4.—NEW JERSEY STATE LEAGUE OF MUNICIPALITIES.** Annual convention, Trenton, N. J. Secretary, Clinton A. Swartz, Trenton, N. J.

**Jan. 15-17.—VIRGINIA GOOD ROADS ASSOCIATION.** Seventh annual convention, Richmond, Va. Secretary, C. B. Scott, Richmond, Va.

**Feb. 6-13.—FIRST CHICAGO CEMENT MACHINERY AND BUILDING SHOW.** Supersedes annual Chicago Cement Show. Held at the Coliseum, under direction of the National Exhibition Co.

**March 17-24.—PAN-AMERICAN CONGRESS ON CHILD WELFARE.** Montevideo, Uruguay. Secretary, Edward N. Clopper, 105 East 22d Street, New York, N. Y.

### National Municipal League.

"Cities During War Times" will be the dominant theme of the annual meeting of the National Municipal League at Detroit, November 21-24. One entire session will be devoted to the topic, "Feeding Our Cities in War Time," the principal speaker being George W. Perkins, chairman of the New York Market Commission, who will address himself to the subject of state organization for food supply. President Marcus M. Marks, of the Borough of Manhattan, will speak on wholesale and retail markets, and a representative of the National Food Commission on "How the Cities Can Effectively Assist in the Food Crisis." Still another subject will be "Agents for Better Local Distribution of Food."

A session will be devoted to the "War Time Experiences of English and Canadian Cities," over which W. D. Lighthall, K. C., of Montreal, will preside. Among the speakers arranged for this meeting are Sir George Gibbons, Mrs. H. P. Plumtre, secretary of the Canadian Red Cross Society, and Mayor Church of Toronto.

The annual review of the secretary, Clinton Rogers Woodruff, of Philadelphia, will deal with "American Cities

During War Time and Their Problems."

Underlying all the sessions will be the thought, "What must we do to make our cities effective during and after the war?" Consequently the city manager form of government, budget making and training for public service will come in for a large share of attention.

One of the questions to be discussed in conjunction with the City Managers' Association, which will meet in Detroit at the same time, is "Will the City Manager Form of Government Fit All Cities." President Lawson Purdy will preside at this meeting, and the speakers will include Richard S. Childs, of the National Short Ballot Organization, City Manager Cummins, of Grand Rapids, George B. Harris, chairman of the Republican City Committee of Cleveland, L. D. Upson, of the Detroit Bureau of Governmental Research, City Manager Carr and Commissioner George W. Knox, of Niagara Falls, and City Manager Waite, of Dayton.

The question of executive or legislative budgets will be the theme of another session, to be held in conjunction with the bureaus of governmental research, likewise meeting at the same time in Detroit. The discussion will be opened by Dr. Frederic A. Cleveland, of Boston, formerly director of the New York Bureau of Municipal Research, and Dr. E. A. Fitzpatrick, of the University of Wisconsin, the former maintaining that the executive should frame the budget and the latter that the legislature should. The discussion will be opened by Arthur N. Pierson, of Westfield, N. J., who is a member of the New Jersey legislature and was the leader responsible for the important financial legislation recently enacted by that state and by Dr. Charles A. Beard, of New York.

Judge Connelly of Detroit, will preside over a luncheon at which Professor Charles E. Merriam, of the University of Chicago, will discuss the question, "Can We Have Non-Partisan City Government." Speakers from leading cities like Cleveland, Detroit, Seattle, San Francisco, Los Angeles, Boston and Toledo will consider the question of whether the non-partisan ballot eliminates the party machine in large cities.

At the dinner on Thursday evening the executive budget will come in for further consideration at the hands of Governor Cox, of Ohio. The important administrative reorganizations in Illinois and Kansas will, it is expected, be discussed by Governor Lowden, of Illinois, and Governor Capper, of Kansas.

"The City and County" will be the subject of another session, at which will be considered the experiences of Baltimore, Denver and California.

Among the speakers will be City Solicitor S. S. Field, of Baltimore, Geo. C. Sikes, of Chicago, and William B. Guthrie, of New York.

"Selling Good Government to the People" will be the theme of a luncheon presided over by J. Horace McFarland, of Harrisburg, who will himself speak on this theme along with Dr. D. F. Garland, the director of welfare in Dayton, who will speak on "Humanizing Welfare Reports."

A session on training for public service will be presided over by President Hutchins, of the University of Michigan, at which the speakers will be City Manager Gaylord C. Cummins, of Grand Rapids, Dr. William H. Allen, director of the Institute for Public Service, New York City, and Richard H. Dana, president of the National Civil Service Reform League and a representative of organized labor.

President Lawson Purdy's annual address will deal with the highly important subject of "Municipal Pensions."

Meeting in conjunction with the National Municipal League will be the Civic Secretaries Committee and the Intercollegiate Division of the League, the City Managers' Association, the Bureaus of Governmental Research and the Society for Promotion of Training for the Public Service.

### Pennsylvania Waterworks Association.

Over one hundred water works engineers and officials of water works companies attended the sessions of the annual convention of the Pennsylvania Water Works Association, which was held at Atlantic City, N. J., Oct. 17-18.

J. P. Purdy, general manager of the American Water Works and Electric Company, was re-elected president; W. D. Pollard, general manager of the Pottsville, Pa., Water Works Co., was elected vice-president, and A. W. Lee, of Clearfield, Pa., Water Works Co., was made second vice-president; F. S. Purviance, of Pittsburgh, was re-elected secretary and treasurer.

President Purdy's address was brief and covered the work done by the association in regard to reformations which have improved the service to the public, touched on the war and its problems of making it difficult to secure the iron and steel supplies, and believed that the future promised greater developments and prosperity.

The feature of the session was the detailed account of the experience of Morris Knowles, of Pittsburgh, who was the engineer in charge of putting up the camp at Admiral, Md., where thousands of men, the maximum number reaching 10,500, worked day and night from July 1. Metal pipe was scarce and wood pipe was used in the installation of the water and sewer systems. For water, 20 miles were used, and for sewerage, 30 miles. Forty-five million feet of lumber was fashioned into buildings, a million feet a day being used. Water was secured

(Continued on page 478)

## NEW APPLIANCES

Describing New Machinery, Apparatus, Materials and Methods and Recent Interesting Installations.

### TRUCK WITH WINCH.

#### For Fire Alarm System Maintenance Work.

An excellent example of the ever-increasing variety of uses for motor trucks in municipal service is the work of a Federal machine by the Detroit, Mich., fire department in the telegraph corps division. On this truck depends to a large extent the keeping up of the alarm system of the city, without which the fire department would be almost helpless.

Detroit's growth to the claimed population of 850,000 people, almost half of which has come in the last ten years, necessitates a great deal of new wire installation by various departments of public service, and this Federal performs their work for this division of the service in a very satisfactory manner. An interesting feature of this truck is the winch, which is mounted just at the back of the seat, which is shown in detail in one of the cuts. This is a type "A," O. K. winch, mounted on a 3½-ton chassis, connected with the secondary shaft of the transmission by means of a special clutch, together with sprockets and chain. The winch is used to pull heavy, lead-covered, underground cables through manholes. The throw-out lever is connected with the small clutch on the chassis and is located just at the back of the seat, within convenient reach of the truck driver. The cable drum is 9" in diameter, carried on a 2¼" shaft. It has a capacity of 1,000 ft. of 1½" steel cable, and is geared to a speed of 75 cable feet per minute. This winch has a pulling capacity of 4,000 pounds on a straight pull. The weight of the winch equipment is about 950 pounds.

The efficiency of this equipment and this Federal has been much praised by the fire department officials in charge of the work.

The Detroit police department signal bureau recently purchased a new model Federal 3½-ton, also equipped with a winch similar to the fire department job.

The truck is made by the Federal Motor Truck Company, Detroit, Mich.

### DUPLIX HOOK AND LADDER TRUCK.

#### Recently Purchased by City of Harrisburg.

The fire department of Harrisburg, Pa., recently installed a Duplex city service truck with full hook and ladder equipment. The normal capacity of the truck is 7,000 pounds.

The motor is a Buda, 40 horse-power, four cylinders cast en bloc, 4¼-inch bore by 5½-inch stroke. Lubrication is by plunger oil pump to main bearings and timing gears and constant level splash to cylinders. Ignition is by Eisemann high tension magneto. The carburetor is of the Schebler float feed type. The cooling system utilizes positive water circulation by gear-driven centrifugal pump, and a round vertical tube radiator.

The valves are 1½-inch, clear diameter, poppet type. The connecting rods are heat-treated drop forgings with 2½x2½-inch bearings. The crank shaft is drop forging of open hearth steel, heat-treated and ground.

The clutch is of the enclosed dry multiple disc type. The transmission is of the positive clutch type. Four speeds may be used. Silent chain drive gives choice of two reductions, 1 to 1 or 2 to 1 from all speeds obtainable in transmission. Drive is through shaft with two universal joints from engine to chain case; shaft drive with two universal joints each from chain case to front and rear axle.

A service brake located on lower chain case shaft is operated by foot pedal. The emergency brake on upper

chain case shaft is operated by hand lever. Both brake bands are lined with Raybestos. Steering gear is left side irreversible worm gear type controlling front wheel by forged levers, connecting rod on left side and transverse rod at rear of front axle.

The frame is very rigid, being of special pressed channels, with gussets of boiler steel. The front and rear axles are steel forgings, 3-inch, 1-beam cross-section. The front and rear springs are semi-elliptic, 3 inches wide and 41⅝ inches long. The over-all length of the chassis is 441 inches and the over-all width 70 inches. The wheel base is 262 inches. The wheels are hickory, artillery type. The tires are 36x6 inches, single solid, front and rear.

The ladder equipment carried includes one 55 and one 40-foot Pirsch patent trussed extension ladder with rope hoist, automatic locks and stay poles; one 16-foot inside extension ladder; one 28 and one 22-foot trussed wall ladders; one 25-foot trussed wall ladder carried on sides; one 16-foot wall ladder with folding hooks and one 12-foot roof ladder with folding hooks. Poles, axes, pike poles, wall pick, crow bars, hose shut-off and door opener, extinguishers, lanterns, etc. All fire equipment is supplied by the Pirsch Company.

The truck, which is shown in the accompanying illustration, is made by the Duplex Truck Company, Lansing, Mich.

## INDUSTRIAL NEWS

**Cast Iron Pipe.**—Prices remain at the same level after the big drop on all sizes recently announced. Business, however, is dull. Quotations: Chicago, 4-inch, class B and heavier, \$53.50; 6-inch, \$50.50. New York, 4-inch, class B and heavier, \$59.50; 6-inch,



FEDERAL MOTOR TRUCK EQUIPPED WITH WINCH FOR FIRE ALARM WORK.



\$56.50. Birmingham, 4-inch, class B and heavier, \$48; 6-inch, \$45; class A, \$1 extra, all sizes.

**The American-La France Fire Engine Co.,** Elmira, N. Y., announces the following shipments of apparatus: Oswego, N. Y., type 45 triple combination chemical engine and hose car and type 12 combination; Seattle, Wash., type 45 pumping engine and hose car; Holland, Mich., type 12 combination with junior pump; Utica, N. Y., type 40 chemical engine; Oneida, N. Y., type 12 triple combination chemical engine and hose car; Worcester, Mass., type 12 triple combination chemical engine and hose car; No. Kingstown, R. I., type 12 triple combination chemical engine and hose car; Tenaflly, N. J., two type 12 combination chemical engines and hose cars and two type 12 triples; Bridgeport, Conn., type 12 combination service truck; Phoenixville, Pa., type 12 combination with junior pump; Billerica, Mass., type 40 combination with junior pump; New Haven, Conn., 65-ft. aerial truck; Utica, N. Y., two type 60 combination chemical engines and hose cars; Rawlins, Wyo., type 60 combination with junior pump; Utica, N. Y., type 12 combination pumping engine and hose car and type 40 combination pumping engine and hose car.

#### Granite Paving Block Production.—

The United States Geological Survey has issued figures showing that there was a decrease in nearly 7 per cent in quantity and nearly 3 per cent in value in the sale of granite paving blocks for 1916 as compared with the preceding year. The average price per thousand, however, increased from \$48.85 to \$51.09. Four of the eighteen producing states only, Maryland, New Hampshire, North Carolina and Wisconsin, showed an increase in value and sales. There was a decrease in Maine owing in part to the strike in the Vinal Haven district, which kept 400 cutters idle for six weeks.

The decrease in quantity in 1916, though smaller than that in 1915, was even more general. Wisconsin's increase evidently signifies continuation of the increased demand in the Chicago and neighboring markets, but other increases during 1915 in the in-

terior states were not maintained in 1916. The other three states showing increase in 1916 supplied the same general markets as neighboring states showing decrease, and their amount of increase was insufficient to offset the decrease. Had work continued at the average rate during that period, the New England states as a whole, and probably the entire country, would have equaled or surpassed the production in 1915. As there has been a growing recognition among city engineers and street commissions of the suitability of granite paving blocks for streets supporting heavy traffic, the decrease in quantity of paving blocks sold in 1916 appears due to a decrease in the amount of heavy traffic construction work, rather than to competition with other paving materials.

Wisconsin, which ranked second in quantity and first in value in 1915, led in both quantity and value in 1916. Maine, which ranked first in quantity in 1915, was second in both quantity and value in 1916. New Hampshire passed Massachusetts in quantity, ranking third in this respect.

The quantity and value of paving blocks sold in these and in other states producing more than 1,000,000 blocks during 1915 and 1916 were as follows:

	Number	Value
	1916	
Wisconsin .....	10,229,714	\$577,758
Maine .....	10,910,032	495,327
New Hampshire .....	4,243,753	205,456
Massachusetts .....	5,580,441	283,612
North Carolina .....	4,024,677	191,796
Georgia .....	3,639,970	108,177
Minnesota .....	1,859,715	123,940
	1915	
Wisconsin .....	11,005,538	\$685,622
Maine .....	8,823,252	430,753
New Hampshire .....	5,486,815	247,177
Massachusetts .....	5,304,377	282,640
North Carolina .....	4,376,383	200,851
Georgia .....	3,168,927	105,350
Minnesota .....	1,292,386	85,106

The average price per thousand varied from as low as \$32 in California and \$33 in Georgia to \$66 in Minnesota and Rhode Island. There was little geographic significance to differences in average price, other than a relatively low price for labor in the southeastern states. The principal controlling factor was apparently the ease with which the blocks could be prepared. Thus the average prices in New Hampshire (\$45) and in Georgia (\$33), where some of the granites are abundantly produced, were in contrast to that in Massachusetts (\$53), where

some of the granites are unusually hard, and with those in Wisconsin (\$62) and Minnesota (\$56), which are characterized by hard granites.

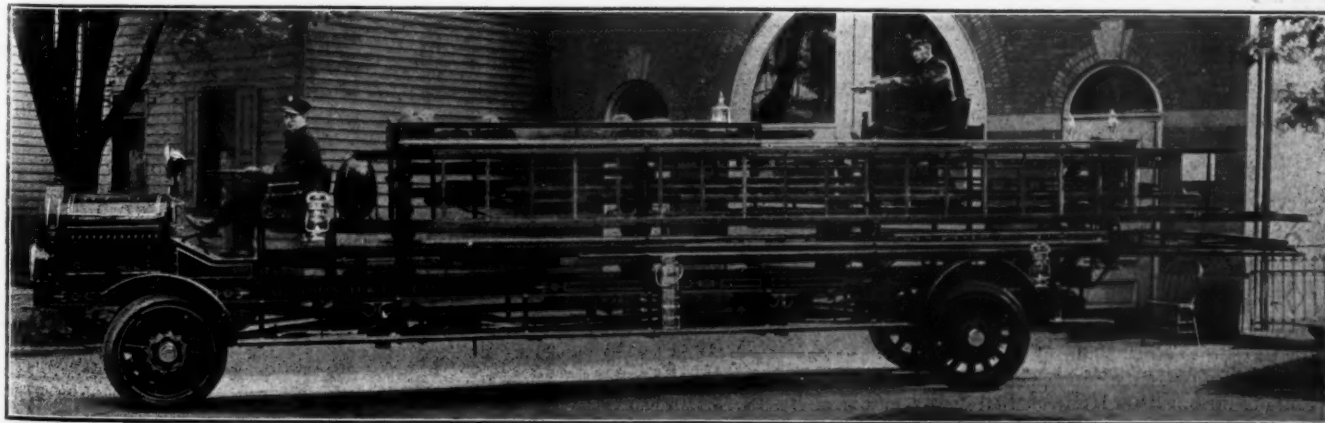
The value of sales of "durax" granite paving, reported by two producers, is not included in the foregoing figures.

#### Deterioration in Heating Value of Coal.

A report on the deterioration in the heating value of coal during storage, covering a five-year period, has just been issued by the Bureau of Mines, Department of the Interior, as Bulletin 136, Horace C. Porter and F. K. Ovitiz being authors. The tests show that the amount of deterioration of coal in heating value during storage has commonly been overestimated. Except for the subbituminous Wyoming coal, no loss was observed in outdoor weathering greater than 1.2 per cent in the first year, or 2.1 per cent in two years. The loss in heating value is given for New River and Pittsburgh coals during five years' storage in the open air and under water, for Pocahontas during two years' storage in the air, and for Sheridan, Wyoming, coal during two and three-quarters years' storage in the air.

The tests with New River and Pittsburgh coal were made to determine the advantage to be gained by storing coal under water, and particularly under salt water. The results show that storage of New River coal under water effectively prevents deterioration of calorific value and that storage in the air under severe conditions causes only small deterioration, about one per cent in one year's exposure and about two per cent in two years. After two years the loss is continuous but slow, reaching 2.5 to 3 per cent in five years. The deterioration of Pittsburgh coal during one year's open-air storage was practically negligible. During the second, third, fourth and fifth years the deterioration proceeded very slowly and did not reach an amount greater than 1.1 per cent in five years. The submerged portions suffered no loss measurable by the degree of accuracy of the methods used.

The tests of Pocahontas coal, a semi-bituminous type, were undertaken



DUPLEX HOOK AND LADDER TRUCK INSTALLED BY HARRISBURG, PA.

chiefly to determine the effect on an outdoor pile of 100 tons of run-of-mine coal. During two years' outdoor exposure this coal deteriorated less than one per cent in heating value.

The Sheridan, Wyoming, subbituminous coal, known also as "black lignite," is commonly supposed to deteriorate rapidly in storage, especially by "slacking" or crumbling of the lumps. Under the conditions of the tests this coal lost 3 to 5.5 per cent of its heat value in two and three-fourths years' storage, the greater part of this loss being in the first nine months. In general, the lumps became badly cracked, but retained their form sufficiently to permit ready access of air. However, they were weakened so that they broke up badly on handling. By the use of bins with air tight bottoms and sides and a protecting layer of fine slack on the surface, the deterioration of Sheridan coal in heat value can probably be kept below 3 per cent in one year and the physical deterioration can also be largely prevented in the under portions of the pile.

The results show that the amount of deterioration of coal in heating value during storage has commonly been overestimated. With coal such as New River and Pittsburgh the expense of underwater storage equipment is not justified except as a preventive of fires from spontaneous combustion.

Detailed results and a full account of the tests and analytical data are given in the bulletin, which may be obtained free of charge by addressing the Director of the Bureau of Mines, Washington, D. C.

**Walter A. Zelnicker Supply Co.,** St. Louis, Mo., recently issued Bulletin 226 with the title "Not That We Want to Boast—but . . ." featuring "12 acres full of material" in striking pictures. Some typical Zelnicker bargains were listed.

**The Duplex Truck Company,** Lansing, Mich., through R. M. Lee, president, announces that Herman Loeffler has become a member of the Duplex sales department and will represent the company in the Eastern States. Mr. Loeffler was connected with the Fairbanks-Morse Company for ten years, and for the last three years has been associated with the Novo Engine Company of Lansing.

"Saving Dollars on Truck Tires" is the suggestive title of a new series of truck tire conservation bulletins, now being offered by the **Goodyear Tire & Rubber Company,** Akron, Ohio, to owners and drivers of motor trucks operating on solid tires. A rapidly increasing number of pneumatic tire users are coming to appreciate the practical benefits of tire care and are making an honest effort to get from the tire all the mileage built into it at the factory. But, unfortunately, a considerable army of motor truck operators has come to regard solid tires as simply so much rubber fastened to the wheel, overlooking that solids are built to fill a definite need just as pneumatics are, and therefore subjecting them to abuses that tires were never intended to withstand. The new Goodyear bulletins point out in a definite

and positive manner the effects of such tire abuses as overloading, speeding, driving in car tracks and on rough roads, neglected cuts, improper use of non-skid devices and wheel irregularities. They come in a set of eight separate bulletins, each treating some particular form of abuse that is costing many miles of tire service.

They set forth that first of all the tire must be adapted to the conditions under which it must perform, and show that the driver, after all, is the most important factor in the matter of obtaining satisfactory mileage, next to the tire itself. A careful driver can save a big part of his salary for his employers by giving his tires proper attention. It depends on him whether the truck shall take a short cut through a rough unpaved alley or go around a block farther on smooth asphalt.

Special attention is called to the disastrous effects of overloading, which is the most common abuse that tires are subjected to. Every motor truck is rated at a certain capacity by its manufacture, generally represented in tons, and when loaded beyond this capacity both tires and truck are overloaded. And the biggest expense is soon found in increased tire bills.

The new bulletins contain no sales talk—they are simply designed to help all users of solid truck tires, no matter what make of tires they may be using. The series of eight bulletins may be secured free by addressing the company.

## NEWS OF THE SOCIETIES

(Continued from page 475.)

partly from driven wells and partly from the river there, filtering it before sending it into the camp's mains. The pipe was placed three feet under ground. Not a death occurred, during the period of time the camp has been under construction, from malaria or typhoid.

## PERSONALS

Allen, Herman C., of Wallace, Ida., has been named as state highway engineer to fill the vacancy caused by the resignation of E. M. Booth, who has received a commission in the Federal service.

Ferrier, Francis, former mayor of Berkeley, Cal., died Oct. 11, after a brief illness. He was a native of Ontario, Canada, and was 66 years old.

Hodgins, W. D., mayor of Winona, Minn., died Oct. 15, after a lingering illness. He was 56 years of age, and had served several terms as alderman and as mayor during the previous term. Julius H. Protz, president of the city council, becomes acting mayor.

Wagner, Gerald T., is now city engineer of Grand Rapids, Mich., in the place of W. S. Moore who has been appointed chief engineer of the Indiana state highway department.

## PROBLEMS CITIES ARE STUDYING WITH EXPERTS

New **WATERWORKS** machinery is to be installed by Chapleau, Ont. Specifications were prepared by Chipman & Power.

Brainerd, Minn., is to spend \$150,000 in improving its **WATERWORKS**. The city has retained as consulting engineer L. P. Wolff.

Newton, Kans., is to build a **SEWAGE DISPOSAL PLANT**. The engineers engaged to prepare plans and specifications are the firm of Black & Veatch.

Arma, Kan., is to improve its **WATERWORKS**. Preliminary plans for the work have been prepared by Albert C. Moore.

Ida Grove, Ia., is to improve about thirty blocks of **STREETS**. The plans and specifications for the work were drawn by K. C. Gaynor.

A **SEWERAGE SYSTEM** is contemplated by Blair, Neb. The city has retained to investigate and report on the improvement the Henningson Engineering Company.

**WATERWORKS** and a **SEWERAGE SYSTEM** are to be built by Benson, N. C. The engineer for the improvements is Gilbert C. White.

Bancroft, Neb., is to install an **ELECTRIC LIGHTING SYSTEM**. The engineers for the improvement are the Electric Development Company.

Leaksville, N. C., is proposing the construction of a **SEWERAGE SYSTEM** and **WATERWORKS**. The consulting engineer for the work is J. N. Ambler.

An **ELECTRIC LIGHT PLANT** is proposed for Johnstown, Neb. The engineers for the improvement are Bruce & Standeven.

Sac City, Ia., is to construct a municipal **ELECTRIC LIGHT PLANT**. The engineering work for the improvement has been placed in the hands of G. L. Long.

A municipal **ELECTRIC LIGHT PLANT** is to be built by Millstadt, Ill. Plans and specifications for the improvement are in the course of preparation by the Fuller-Coult Engineering Company.